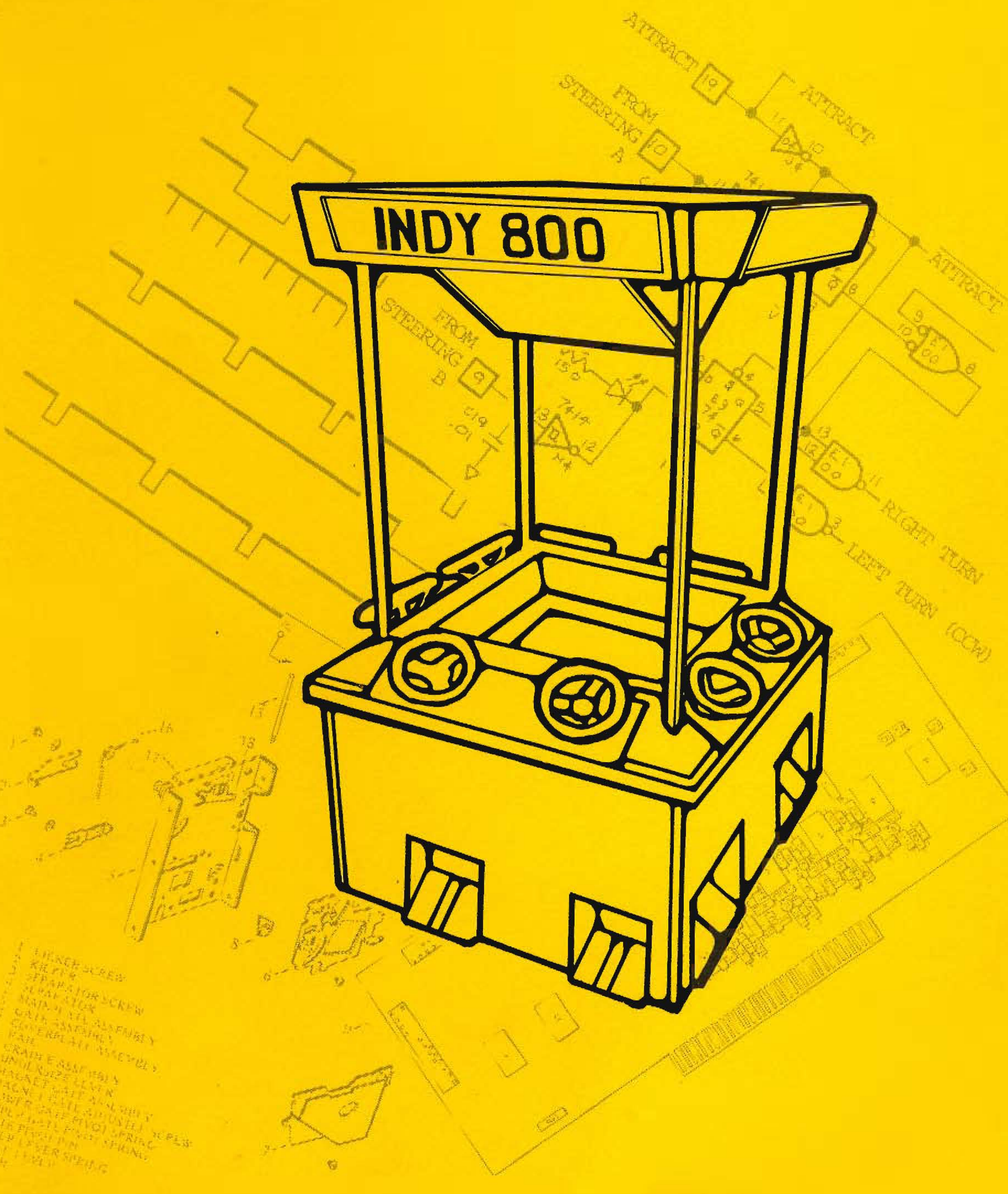
TM-026

INDY 800

Service Manual

KEE GAMES
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WARRANTY

Seller warrants that its printed circuit boards and parts thereon are free from defects in material and workmanship under normal use and service for a period of ninety (90) days from date of shipment. Seller warrants that its television monitors are free from defects in material and workmanship under normal use and service for a period of thirty (30) days from date of shipment. None of the Seller's other products or parts thereof are warranted.

If the products described in this manual fail to conform to this warranty, Sellers' sole liability shall be, at its option, to repair, replace, or credit Buyer's account for such products which are returned to Seller during said warranty period, provided:

(a) Seller is promptly notified in writing upon discovery by Buyer that said products are defective;

(b) Such products are returned prepaid to Sellers' plant; and

(c) Seller's examination of said products discloses to Seller's satisfaction that such alleged defects existed and were not caused by accident, misuse, neglect, alteration, improper repair, installation or improper testing.

In no event shall Seller be liable for loss of profits, loss of use, incidental or consequential damages.

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Table of Contents

1. GENERAL MAINTENANCE INFORMATION

1-1. INTRODUCTION

The Atari Indy 800 game consists of a cabinet, TV monitor, printed circuit boards (PCBs), interconnecting wiring, and various cabinet-mounted circuit components. Except for a schematic, no information about the TV monitor is presented in this manual. The TV monitor is a GE 25" color unit. TV circuit malfunctions can be solved using standard TV troubleshooting techniques. However, the PCB computer requires troubleshooting techniques that may be unfamiliar to the average technician. Therefore, the troubleshooting information in this manual is dedicated to the PCBs and their associated cabinet circuitry.

1-2. NEW MACHINE SET-UP PROCEDURE

Before turning this machine on, inspect it carefully for any damage which may have occurred during shipment. Inspect both interior and exterior of the machine for any obvious damage to the cabinet or internal components. Check for cracked or broken cabinet parts, assemblies pulling loose, broken or disconnected wires, or foreign objects shorting electrical connections. After the machine has been plugged in and turned on, perform the checkout procedure.

1-3. NEW MACHINE CHECKOUT

As each new machine leaves the factory, every component and subassembly is carefully checked for proper operation. However, since parts may have been damaged or adjustments changed during shipping, the following checkout procedure must be repeated prior to placing the machine on location:

1. Inspect both the exterior and interior of the machine for obvious shipping damage such as cracked or broken cabinet parts, subassemblies broken loose, etc.
2. Carefully inspect the interior of the machine to see that all solder joints, slip-on connectors, and plug-in type connectors are firmly seated. Pay particular attention to the PCB edge connector and the fuses. Also check the connections to the coin switch, the TV monitor, the interlock switches, and all other Molex-type connectors.
3. Plug the machine in, and pull out the white actuator shafts of the interlock switches if the rear door is open. Inspect the cathode ray tube image for a steady and sharp picture that exhibits the proper levels of brightness and contrast.

4. Insert several old and new coins into the coin acceptor. No genuine coin should be rejected, and each coin insertion should step the coin counter one digit. Depress the coin rejector button to make sure that the linkage is operating smoothly.
5. Coin insertion should start the game. Check for proper game sequence, making sure that all aspects of the game are functioning correctly.
6. The interlock switch must turn off the entire machine when the rear door is opened.

1-4. Q-530 COIN ACCEPTOR: OPERATION, ADJUSTMENT & MAINTENANCE

All coin acceptors leave the factory adjusted for maximum performance. If, however, more critical adjustments are desired, or if the unit has been completely disassembled for service, the following adjustment procedure is suggested. If the coin acceptor has been removed from the machine, place it in a vertical position on a level surface. If the acceptor is still mounted on the coin door, place the coin door in a vertical position on a level surface.

1. Kicker and Separator

   a. Set the acceptor with the back of the unit facing you in the test position.
   b. Loosen the screws holding the kicker (1) and the separator (3) and move both the kicker (2) and the separator (4) as far to the right as they will go. Tighten the screws.
   c. Insert several test coins (both old and new) and note that some are returned by striking the separator.
   d. Loosen the separator screw and move the separator a slight amount to the left. Tighten the screw.
   e. Insert the test coins again and, if some of them are still returned, repeat Step d until all the coins are accepted.
   f. Loosen the kicker screw and move the locker as far to the left as it will go. Tighten the screw.
   g. Insert the test coins and note that some are returned.
   h. Loosen the kicker screw and move the kicker a slight amount to the right. Tighten the screw.
   i. Insert the coins again and, if some are still returned, repeat Step h until all the coins are accepted.
   j. Be sure that both screws are tight after the adjustments have been made.

2. The Magnet Gate

a. Set the acceptor with the front of the unit facing you in the test position.

b. Turn the magnet gate adjusting screw (2) out or counterclockwise until none of the coins will fit through.

c. With a coin resting in the acceptor, turn the adjuster in or clockwise until the coin barely passes through the magnet gate.

d. Test this adjustment using several other coins, both old and new, and if any of them fail to pass the magnet gate, repeat Step c until all the coins are accepted.

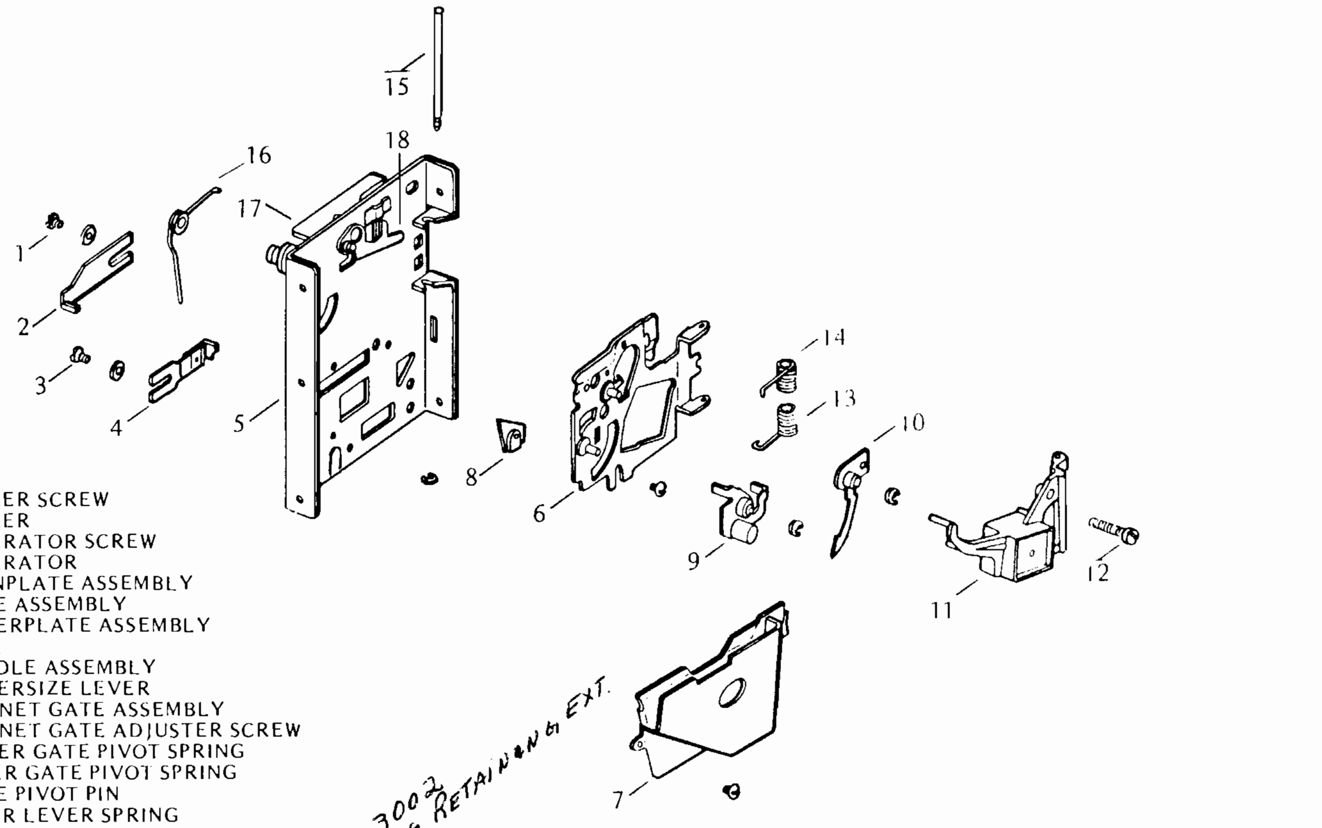
e. Fix the magnet gate in this position with a drop of glue or Loctite(TM), if necessary.

3. Acceptor Maintenance

Depending on the environment in which the acceptor is used, periodic preventive maintenance should be performed. The mainplate (5) may be cleaned with any household cleaner. Thorough rinsing and drying are necessary to remove deposits and/or film. Remove all metal particles from the magnet by guiding the point of a screwdriver or similar tool along the edges of the magnet. You will notice that the particles will cling to the point of the tool. Remove the transfer cradle (9) and the undersize lever (10) and clean the bushings and the pivot pins. A pipe cleaner is an effective cleaning tool. Apply powdered graphite or pencil lead to the pivot pins and bushings and reassemble. Spray the entire unit lightly with WD-40®, a lubricant.

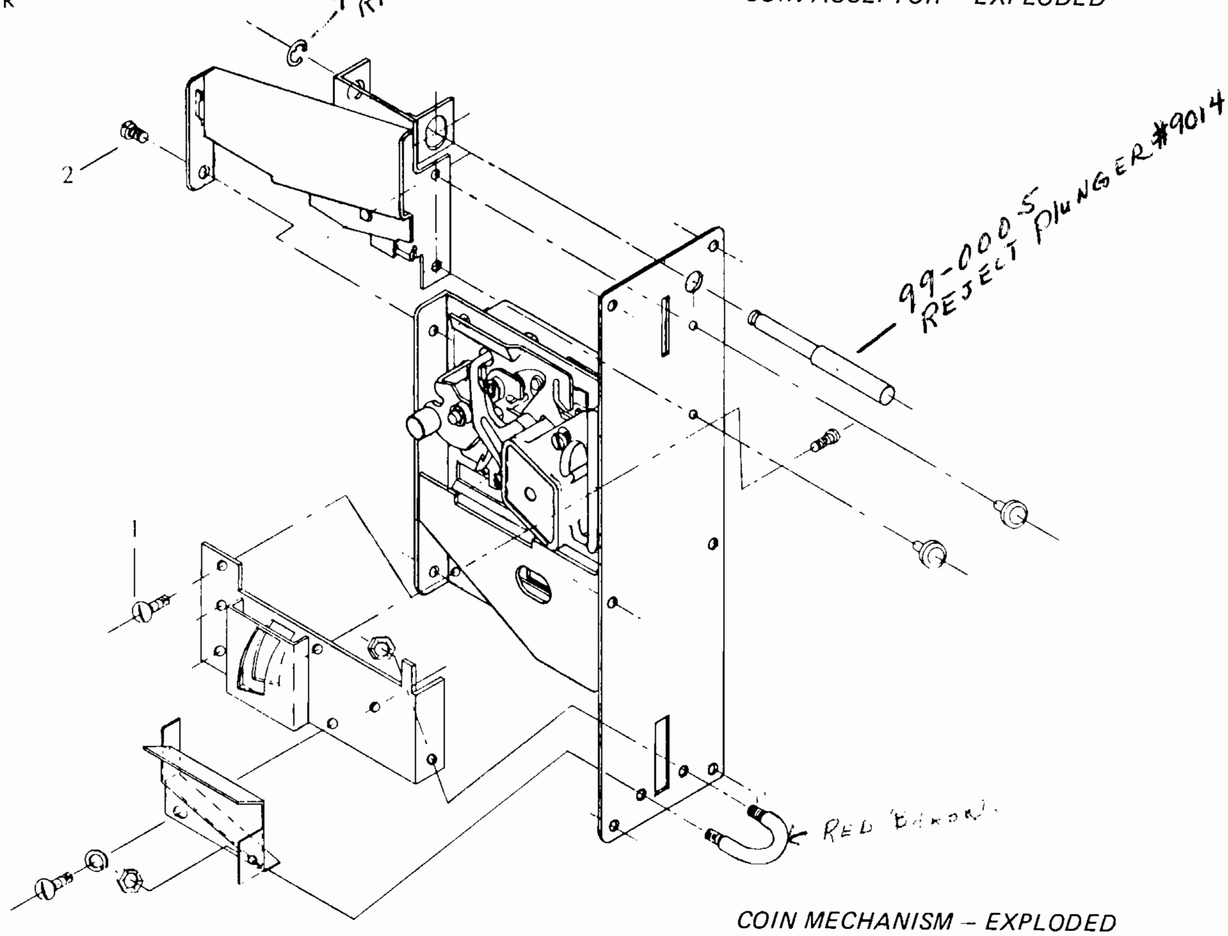
1-5. GENERAL MACHINE MAINTENANCE

Due to its solid-state circuitry, your machine will require very little maintenance other than periodic cleaning, lubrication and TV monitor adjustment. The cabinet and plexiglass screen may be cleaned with any non-abrasive household cleaner. The coin acceptor and the rejector linkage should be sprayed lightly once every three months with WD-40® or a silicone lubricant. The potentiometer shafts must never be lubricated in any way. The TV monitor is adjusted only when the CRT picture is distorted, or if the contrast or brightness appear to be out of adjustment.



1 KICKER SCREW
2 KICKER
3 SEPARATOR SCREW
4 SEPARATOR
5 MAINPLATE ASSEMBLY
6 GATE ASSEMBLY
7 COVERPLATE ASSEMBLY
8 RAIL
9 CRADLE ASSEMBLY
10 UNDERSIZE LEVER
11 MAGNET GATE ASSEMBLY
12 MAGNET GATE ADJUSTER SCREW
13 LOWER GATE PIVOT SPRING
14 UPPER GATE PIVOT SPRING
15 GATE PIVOT PIN
16 WIPER LEVER SPRING
17 WIPER LEVER
18 WIPER

COIN ACCEPTOR – EXPLODED



COIN MECHANISM – EXPLODED

2. CIRCUIT DESCRIPTION

2-1. GENERAL SYSTEM DESCRIPTION

1. The Indy 800 electronics system consists of the following components:

Part/Assy No.	Qty.	Description	Section	Page
A003182	1	Sync PCB	2-2	2-5
A003170	1	Score PCB	2-3	2-8
A003184	1	Coin control PCB	2-4	2-10
A003000	8	Car PCB	2-5	2-13
A003199	1	Backplane PCB	2-1	2-4
A003191	1	Power Supply PCB	2-6	2-19
A000607	8	Steering PCB	2-1	2-4
A003193	1	Remote panel PCB	2-4	2-11
92-013	1	25" color TV monitor	---	---
---	-	Harness & controls	---	---

The sync, score, coin control, and eight individual car boards are housed in a card rack within the game. These PCBs are interconnected by the backplane circuit board which is located at the rear of the card rack. The backplane board also provides edge connectors for interfacing with the other system components through the harness. Figure I-A shows the locations of the various boards and connectors within the card rack. The car numbers, colors, and steering wheel locations as well as locations of the card rack and power supply are shown in Figure I-B.

2. Basic functional description of each PCB

   a. Sync PCB

   This includes the system clock, the video sync counters, and timing function generators, the race track video, the score checkpoints, score video windows, and the ORing circuitry for detection of collisions with other cards. The master audio volume control is also located on this board.

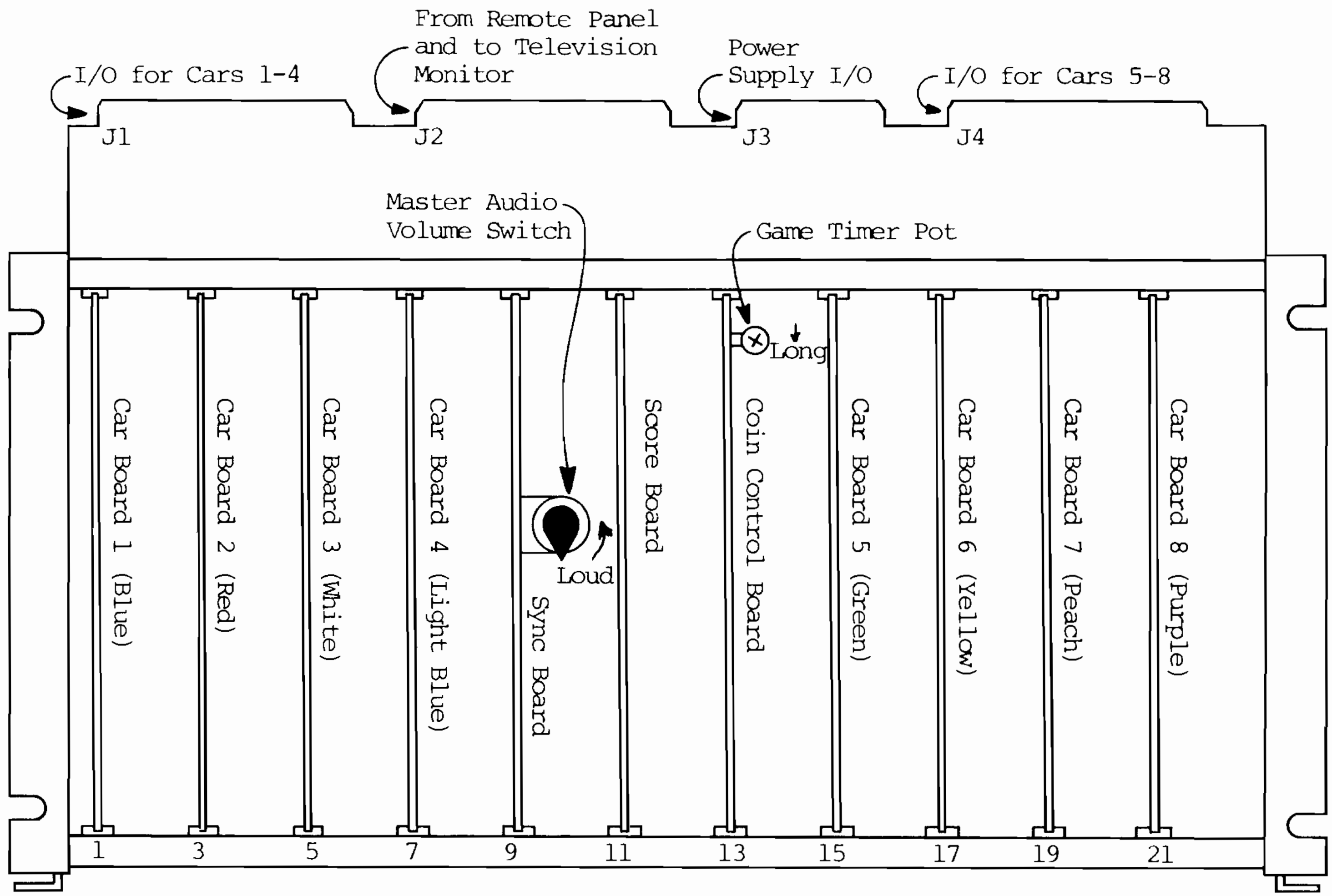


Figure I-A: Indy 800 Card Rack Layout (Front View)

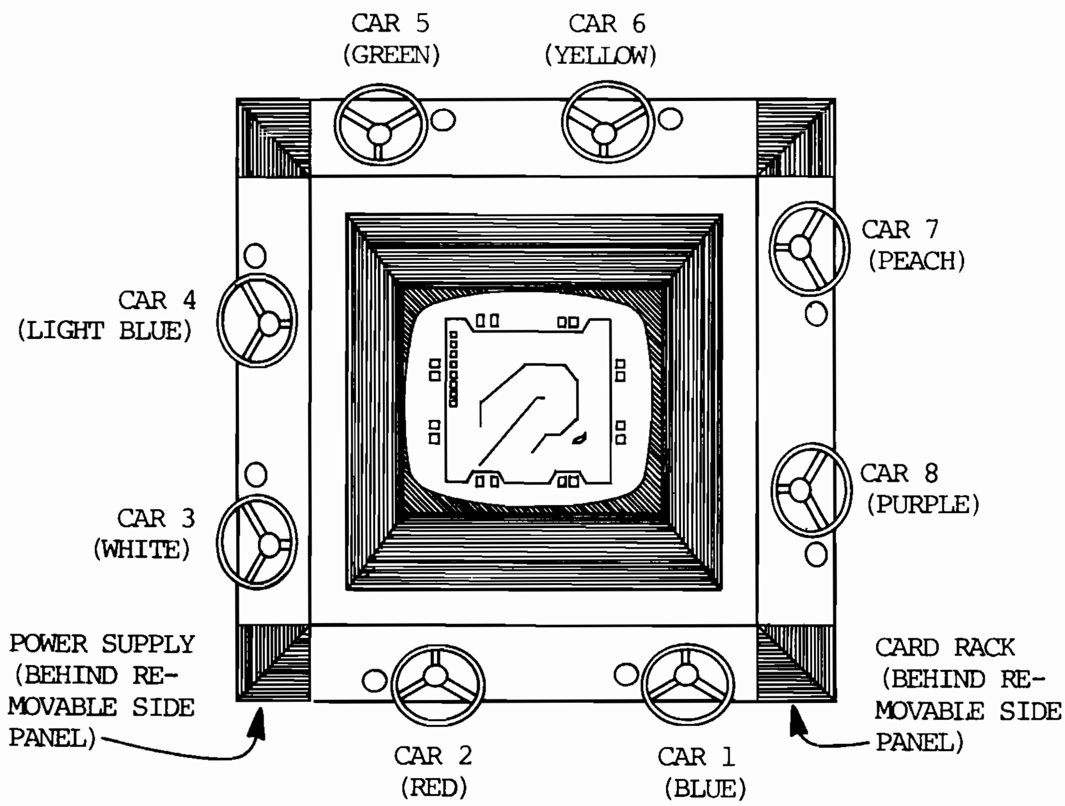


Figure I-B: Indy 800 Cabinet, Location of Car Controls and Electronics

b. Score PCB

This includes all the circuitry necessary for detecting, counting, and displaying the score for each car. It also senses which car has the highest score and causes that score to blink. Finally, it contains the video outputs to the TV (except sync) and the TV calibration function circuit.

c. Coin control PCB

This monitors all coin inputs. It generates the reset and enable for each car in both the attended (with remote panel) and unattended (coin input, automatic) modes. The game timer and game turn-off circuitry are also included on this board.

d. 8 identical car PCBs

These control each of the individual cars. Each board contains all the circuitry necessary to rotate, move, and produce the video and audio for one car when enabled. The skid, collision, and crash detectors are also on this board.

e. Backplane board

This has no electronic components and serves only as an interface between the various components of the entire system.

f. Power supply PCB

This is the source of the unregulated power supplies for the digital and analog circuitry of the other boards. The relays and drivers for the coin mechanism lockout coils are also located on this board.

g. Steering PCBs

These are mounted on the backside of the steering wheel assemblies. The boards use optical sensing to produce two signals in quadrature, which may be decoded into rate and direction of rotation.

h. Remote panel

This is simply a switch board which is used to control the game in the attended mode of operation. Individual car enables, a master enable, and a start button are provided. When the remote panel is disconnected, the game automatically reverts to the unattended or automatic mode.

2-2. THE SYNC PRINTED CIRCUIT BOARD

The sync PCB has circuitry to produce the following functions:

1. System CLOCK and video countdown chain.
2. COMP SYNC signal to TV monitor.
3. Race track video.
4. Score CHECKPOINTS.
5. SCORE WINDOW.
6. OTHER CARS signal for each car.
7. +5 volts power for steering boards.
8. Miscellaneous timing signals to other logic.
9. MASTER VOLUME CONTROL signals.

The system CLOCK runs at 14.3 MHz. The horizontal countdown chain A4 B4, C4 (9316s) divides this basic frequency by 908 for each video line (15.76 KHz). The vertical countdown chain D4, D4 (7493), E3 (74107) divides the line rate by an additional 263 for a video frame (60 Hz).

The horizontal counter starts at 116 (binary 0001110100) and counts to 1024 (1111111111). The horizontal sync pulse (HSYNC) begins at count 256 and is 64 clock pulses wide (4.47 μsec). This is done at C3-9 (7474) where the rising edge of 256H clocks a low through to Q, which is set back to a high 64H later by B3-11 (7400).

The vertical counter counts from zero (binary 000000000) to 262 (100000110), at which time D3-12 (7410) goes low. At the next rising edge of 512H, this low is clocked through to C3-5 (7474). VRESET then resets the vertical counters to zero and the cycle begins again after VRESET is cleared again one line later. The vertical sync pulse (VSYNC) comes from an R/S flip flop, D3-1 (7202). It begins with VRESET and is 4½ lines long (290 sec).

The race track signal (RT) is generated by feeding sync counter signals into a 1K ROM, F4 (003189). The 4-bit output is multiplexed to a single line by F3 (74153) and is gated by 512H and by a signal to produce "dots" from A3-8 (7420).

Similarly, the score CHECKPOINTS come from a 256-bit ROM, E5 (003188) which is addressed with functions from the sync counters. The three lowest-order data outputs of this ROM are used to generate the score windows in which the score video will be shown. This generation is

accomplished in some random logic including A1 (7400), B1 (7486), and finally out of C1-8 (7420).

COMP RESET CLOCK is a signal which drives the car reset circuitry on the coin control board. It is a signal that occurs at horizontal count 544 through 1024 on one line out of every 12. D1 (74107) is hooked up as a divide-by-3 counter to produce a 4-line signal every 12 lines. B2 (7400) is hooked up as an R/S flip flip to produce the proper horizontal timing. These are ANDed together along with 1V and 2V signals to produce the required signal at C1-6 (7420).

BOUNDS is a signal that represents a horizontal boundary. It goes to the car reset circuitry on the coin control board. Any car found coincident with this signal is out of bounds and will be reset back to the starting line.

FLASH is a 4-bit (250 μsec) square wave used to make the score of the leader blink.

16V $\oplus$ 32H is a timing signal used in the generation of the score video. It is a digit select signal that multiplexes the high- and low-order digits of the score.

The OTHER CARS signals are a three-level ORing of every car except the one to which the signal is sent. They are used on the car boards to detect collisions between cars.

VCLOCK is a two-pulse signal during horizontal sync on each line (except those lines from 256V until the end of VSYNC). It is used to clock the vertical-motion counters on the car boards.

MASTER VOLUME signals choose one of four possible volume levels for all cars.

See Figure II-A for a diagram of the sync functions, race track, etc., as oriented on the TV screen.

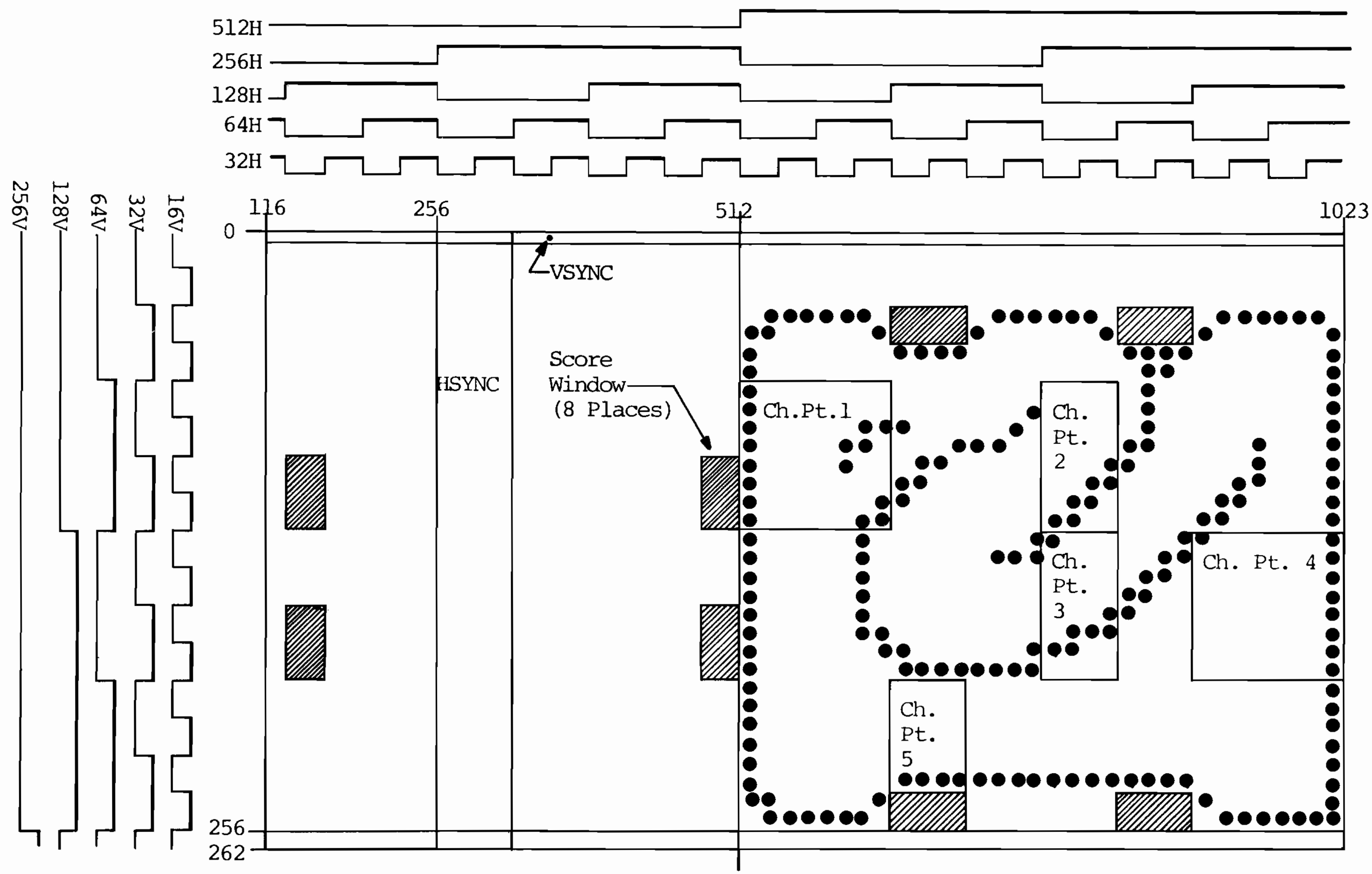


Figure II-A: Sync PCB Functions

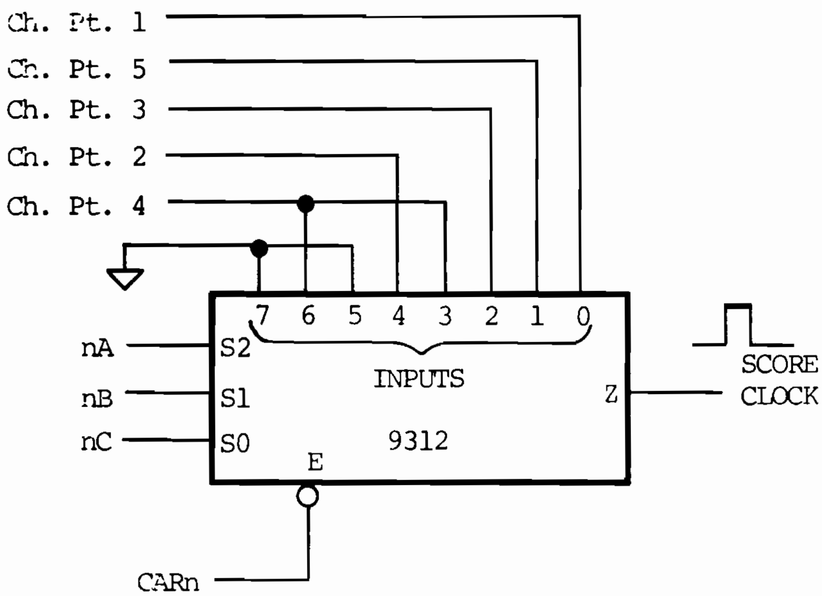
2-3. THE SCORE PRINTED CIRCUIT BOARD

The score circuit board includes several subcircuits that detect, count, and display the score as well as detect the leader. Each car has 6 bits of score arranged in two digits of 3 bits each. The three least significant bits (nC, nB, nA, where n = car number) represent an even decimal digit from zero to 8 and are the signals from the divide-by-5 outputs of a 7490 decade counter. The three most significant bits (nF, nE, nD) are the outputs of a divide-by-8 counter configuration and they represent a decimal digit from zero to 7. Thus, the score for each car runs from 00 to 78, counting by twos.

Score is detected by sensing that the car crosses a series of "checkpoints" in a certain sequence. These checkpoints are generated on the sync board and are located at appropriate places along the race course (see sync board, Section 2). The detection of coincidence between car and checkpoints in the proper sequence is provided by a 9312 IC, an eight-input multiplexer. The circuit is shown in Figure III-A. Depending on the least significant digit (3 bits) of score, the next checkpoint to be crossed is selected.

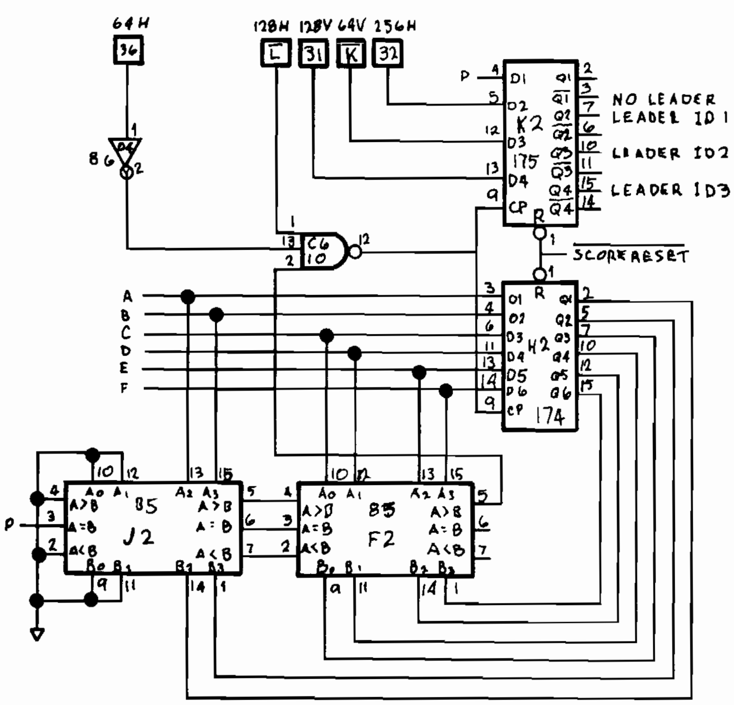
From the score counters, the score bits are time-multiplexed in another stage of six 9312s so that each score is present at the output of the multiplexers when it is to be displayed on the screen. This time-multiplexed score information is then fed into two circuits -- the leader detector circuit and the seven-segment decoder.

The leader detector circuit operates as follows (see Figure III-B). At the start of a game, all of the score counters and the latches K2 (74175) and H2 (74174) are reset. H2 contains the high score bits and K2 contains a code telling which car first achieved that score. At each video frame all the scores are compared to the highest score by comparing the multiplexed score bits (A through F) with the outputs of H2. This comparison is made in the digital comparators J2 and F2 (7485). When the incoming score exceeds the previous high score, an output of the comparator is gated with some sync signals in C6 (7410) to avoid race conditions. The resulting signal clocks H2 and K2 to store the new highest score and new-leader code.



Least Significant Score Bits			Selected Checkpoint
nC	nB	nA	
0	0	0	Ch. Pt. 1
0	0	1	2
0	1	0	3
0	1	1	4
1	0	0	Ch. Pt. 5

Figure III-A: Score Detection Circuit



Leader ID Signals			No-Leader Signal	Car in Lead
3	2	1		
X	X	X	1*	None
0	0	0	0	1
0	0	1	0	2
0	1	0	0	3
0	1	1	0	8
1	0	0	0	4
1	0	1	0	7
1	1	0	0	6
1	1	1	0	5

*No-leader condition is present only at start of game.

Figure III-B: Leader Detector Circuit

The time-multiplexed score is further multiplexed into two digits in H1 (9322) and this information is fed into a seven-segment decoder, F1 (7448). A digital comparator, L2 (7485), is used to make the score of the leader blink by exciting the blanking input of F1 when the LEADER I.D. code matches the time-multiplexed sync signals (256H, 64V, 128V).

Four 74153s (A1, B1, D1, E1) and three 9312s (A2, B2, C2) are the function generators that translate the multiplexed seven-segment data into score video information. E1 and B1 form the seven-segment characters for scores 1, 2, 5, and 6. E1 (74153) forms the vertical segments b, c, e, and f. B1 (74153), together with a blanking signal from B2 (9312), forms the horizontal segments a, d, and g. These are ORed in C1 (7432): C1-11 has the video for scores 1 and 2; C1-8 has the video for scores 5 and 6. Similarly, D1 (74153) forms the vertical segments for scores 3, 4, 7, and 8, and A1 (74153) and A2 (9312) produce the horizontal segments. These are again ORed in C1 (7432): C1-6 has the video for scores 3 and 4; C1-3 has the video for scores 7 and 8. These separate video signals are remultiplexed in C2 (9312), where the score window from the sync board is used to gate the information through at the proper time.

This composite score video signal is then demultiplexed in D6 (9301) into eight separate score video signals. These signals are then ORed with the car signals in E6 and F6 (7408), ANDed with the video function SIGNAL, and sent out to the television as video information. There is some slight additional circuitry that creates video test and alignment functions on the white video output line (car 3). These functions are: normal operation, all-white screen, all-black screen (no video), and a dot pattern for convergence adjustment. They may be selected by attaching the appropriate jumper as shown on the schematic.

2-4. COIN CONTROL PRINTED CIRCUIT BOARD

The coin control circuit board contains the circuitry for the following functions:

1. Coin detection and credit latches.
2. Game control, game timer.
3. Car reset circuitry.

The heart of the coin detection and credit latch circuitry is the LM339 quad analog comparator. This device is used to sense a proper coin input and to latch and register credit for that coin until the end of the game. Normally open and normally closed coin inputs are brought into an inverter latch where the coin signal is debounced.

When the coin switch is closed, the 0.1 μf capacitor on the non-inverting (+) terminal of the LM339 is discharged through a 68K resistor. If the switch is closed for more than 12 msec, the voltage at the non-inverting terminal of the LM339 will go negative with respect to the inverting (-) terminal voltage (ref. Voltage). When this occurs, the output of the LM339 changes state. Through positive feedback, this state is latched into the comparator. If the coin switch is closed for less than 6 msec, the capacitor will not discharge sufficiently to allow the output of the LM339 to change state. Between 6 and 12 msec, the latching may or may not take place, depending on device tolerances. The typical duration of coin pulse needed to toggle the latch is 10 msec. At the end of the game, or in case of a power or static interrupt, the REF voltage at the inverting (-) comparator input is pulled low. The output again goes high, and the 0.1 μf capacitor is quickly recharged through a diode.

The game control circuitry determines which cars are enabled in all modes of operation. There are three basic modes of operation:

1. Unattended (automatic).
2. Attended with coin inputs, remote start.
3. Attended with remote enable and start.

In the attended mode, the remote panel is not used. In the first attended mode the start button on the remote panel is used, but the enable switches are not (they should all be turned to the "off" position). The second attended mode assumes manual collection of money by the attendant. The lockout coil switch on the power supply board should be turned to "off" so that no money can be put into the machine. The attendant then enables any or all of the cars by turning the appropriate switches on the remote panel and pushing the start button.

The coin board determines whether it is in the attended or unattended mode by seeing if the remote panel is connected to it. If the remote panel is connected, then the $\overline{\text{REMOTE}}$ signal will be low (provided by a grounded jumper in the remote connector). Otherwise $\overline{\text{REMOTE}}$ will be high or pulled up. This signal goes to a 9322 quad two-input multiplexer (D2) that selects the proper control functions for required mode of operation.

In the unattended or automatic mode of operation, if any coin has been put into the machine, CREDIT is high (from CREDIT 1, IC C5, 7430). When CREDIT goes high, the game counters K1, J1 (7493s) start counting. After eight pulses from the 1 SEC oscillator, L1 (555), the PLAY 1 latch H1-10 and K1-13 (7402) changes state and the game starts.

If the game is in the play mode and car n has credit (Qn is high), then ATTRACT n will go low (ICs H4 and F4, 7400). This enables the controls on car n so that it may be driven. During the eight-second waiting period, the $\overline{\text{SCORE RESET}}$ signal is driven low by C2-8 (7410). At the end of the game, after 128 pulses from the one-second clock, the END GAME latch H1-4 (7402) produces a pulse to reset the credit latches.

In the attended mode, the START signal clocks the CREDIT 2 flip flop at C3-11 (7474). If any coin latches are set or remote enable switches are in the "on" position, CREDIT and PLAY will go high. The score will be reset by the START signal. At the end of the game, the END GAME latch (H1) will reset the CREDIT 2 flip flop (C3) through C2-4 (7410).

The car reset circuitry resets each car at the start of the game and if it travels out of bounds. COMP RESET CLOCK shifts a series of high signals through the 8-bit parallel out-shift register, C4 (74164). As the high signal ripples through the shift register on consecutive pulses from COMP RESET CLOCK, the individual car reset clocks (CRC 1 through CRC 8) are produced. These are used to clock the car reset flip flops A3, A4, B3, B4 (7474s). If coin switch n is closed or if car n is out of bounds, the set input of car reset flip flop n will be pulsed low, and CAR RESET n will go high. If the game has credit but car n does not, then the D-input to the reset flip flop will be held high and CAR RESET n will be continuously clocked high by CRC n. As long as the CAR RESET signal is high, car n will disappear. Then credit for car n is established, CAR RESET n will be clocked low, and the car will reappear at the starting line.

2-5. CAR PRINTED CIRCUIT BOARD

The car board contains the following circuits:

1. Car steering processor.
2. Car acceleration processor.
3. Car motion counters.
4. Car video processor.
5. Crash and collision detection.
6. Sound synthesis and power amp.

The steering processor is a two-stage up/down counter (E2 and F2, 74193s) with decoding circuitry in front (E3, 7474, and E1, 7300) and the skid detector (C1, 7400) and latch (D1, 7475) after. When the circuit is enabled (attract goes low), the decoder circuitry translates a quadrature signal from the steering board into direction and rate of turn information -- see Figure V-A). $\overline{\text{VTC}}$ on E3-13 (7474) serves as a maximum turning rate signal.

When there is a collision between cars, E1-6 (7400) forces the car to turn for the duration of the COLLISION signal at the maximum turning rate. The red LEDs on the outputs of H4-10, 12 (7414) serve only as visual indicators of the operation of the quadrature signal from the steering board. E2 and F2 (74193s) divide the rotation pulses of the decoder circuit by 128. The last five bits of this division become the rotation code R4-R0* that represents a specific car orientation. Binary 00000 is straight up; the count continues clockwise through 32 consecutive positions up to binary 11111, which is just left of straight up. The skid latch D1 (7475) contains the direction code* of the car or D4-D1 (the lowest-order direction bit is R0).

*The rotation code R4-R0 tells in which direction the car is pointed; the direction code D4-D1, R0 tells the direction of motion.

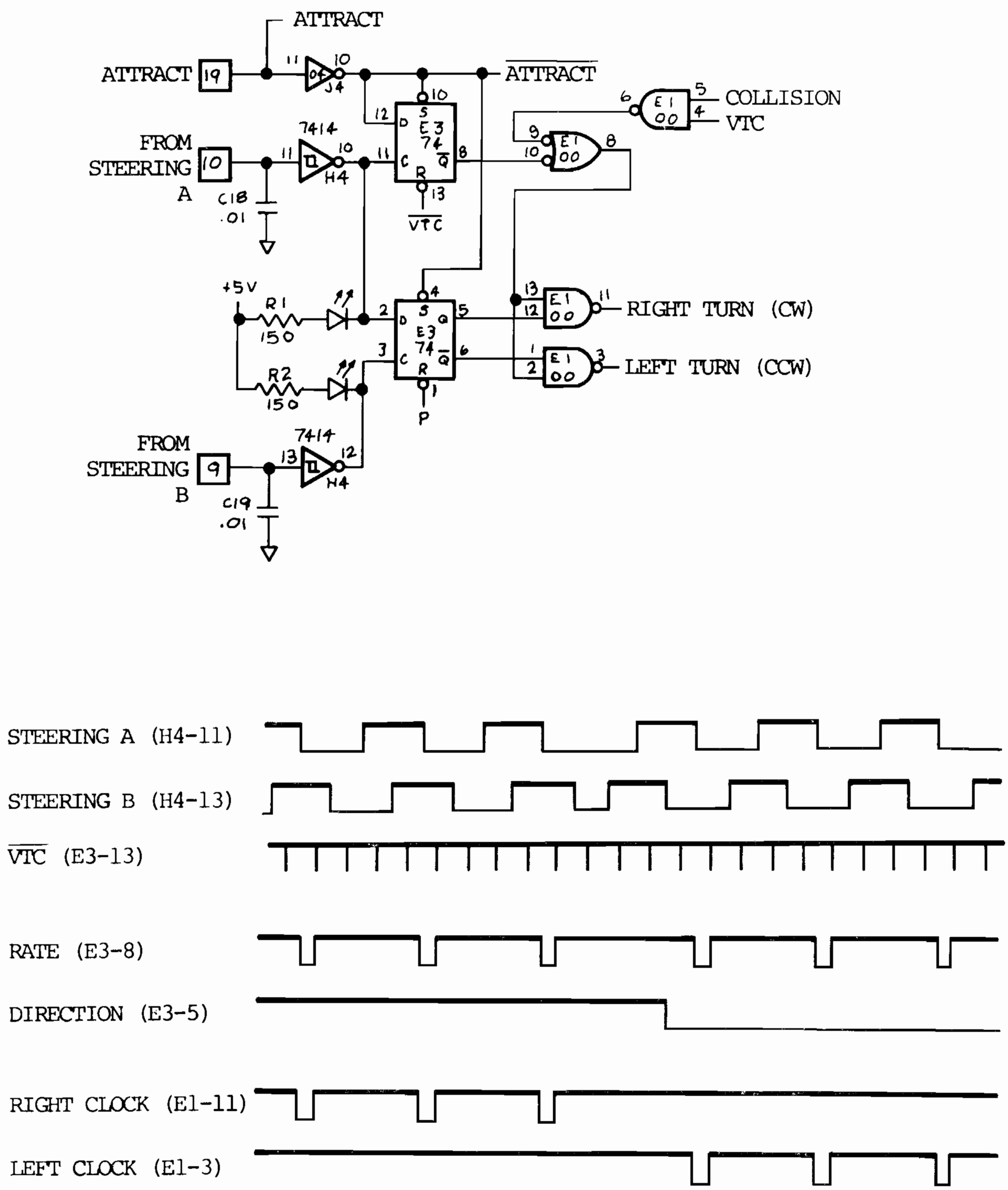


Figure V-A: Steering Decoder Circuit with Sample Waveforms

This code differs from the rotation code only when the car is in a skid. The skid condition is determined by C1 (7400). If the car is at quarter-speed or greater when the brake is depressed, or if the car collides with another car, a skid condition exists, and $\overline{SKID}$ goes low to latch the last rotation into D1.

The acceleration processor consists of some preprocessing circuitry (D3, 74153) to create acceleration and deceleration pulses, an up/down counter (C2, 74193) to count these pulses and keep track of the speed, and a circuit (D2, 7485) that translates this speed information into speed pulses in the GO signal.

With only the gas pedal depressed, the car will accelerate at the rate of one unit per 16 frames (signal from C3-6, 7420 gated with 8F at D3-4). With no pedal depressed or with only the brake depressed, the car will decelerate at the rate of one unit per eight frames. With both gas and brake pedals depressed, the car will decelerate one unit per 16 frames. The up/down counter, C2 (94193) with a fifth stage A1-5 (7407), counts these acceleration units. At speed 14 (binary 11110), C3-8 (7420) gates out any further acceleration pulses and maximum speed is attained. At speed zero, in the attract mode, or after a crash into the pylons, the STOP signal resets the counter outputs to zero. The digital comparator D2 (7485) compares the speed code (SPEED 5-SPEED 1) against frame bits (1F-16F) from B1 (7493) and A1-3 (74107). The result is shown in Figure V-B.

The motion circuit operates on the principle of the Atari patented "slipping counter" method of moving objects on a raster scan display (patent no. 3793483). The motion counters count in parallel with the sync counters on the sync board. In order to move vertically, the vertical motion counter K3 (9316), L3 (9316), and J1-5 (74107) is forced to count short (up) or long (down) with respect to the sync vertical counter. Similarly, the horizontal motion counter H3, J2, H2 (9316s) causes horizontal motion by counting short (left) or long (right) with respect to the sync horizontal counter.

Each frame in which the GO signal is high causes the motion counters to make a unit move in the direction specified by the direction code (D4-D1, R0). To move faster, GO is high more often. A table of approximate sine/

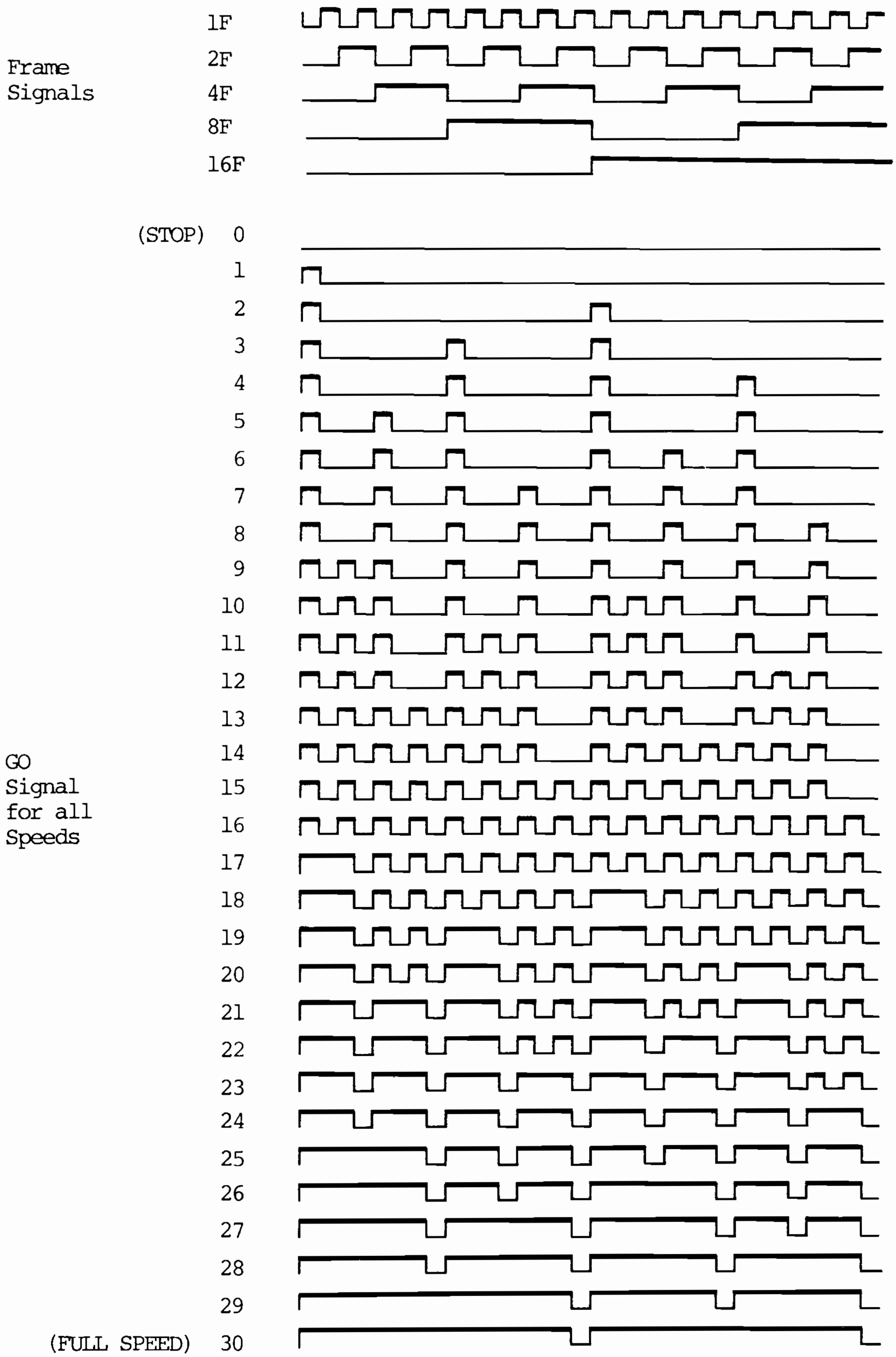


Figure V-B: GO Signal (Speed Pulses)

cosine values for the 32 different directions is contained in a PROM (K4, 003187). This motion code goes to the motion counters when GO enables the PROM. The horizontal motion code is gated with $\overline{\text{VRESET}}$ in F3 (7402). This limits the long or short count to one line of the frame. A table of the horizontal and vertical motion codes for all 32 directions, as seen at the load inputs of H3 and K3 (9316s), is given in Table V-C. The horizontal counter is clocked at the system clock rate of 14.318 MHz.

In order to maintain the same amount of motion resolution vertically as well as horizontally, the vertical motion counter is clocked by VCLOCK. This signal is two pulses per line and is gated out during vertical sync so that the vertical motion counter requires one less stage. Using the terminal count outputs of the counters, a car window is formed of 16 clock pulses by 8 lines.

The video processor uses line, column, and rotation information to address video information in a 4K ROM, K2 (003186). Further column information from the horizontal motion counter is used to multiplex the ROM outputs to a single line from L2 (9312). This video is then clocked into J1-3 (74107) to remove edge effects and race problems. The result is the car video information.

When the car collides with another car, L1 (555) produces a half-second pulse during which the car will skid and spin. If the car crashes into the pylons, a low pulse is made at $\overline{\text{CRASH}}$ (H1-8), 7400). This signal stops the car and triggers the crunch sound. $\overline{\text{CRASH SEQ}}$ remains low and prevents further crashes until the car is no longer in contact with the pylons.

The sounds that are synthesized are the MOTOR SOUND, HORN, CRUNCH (crash), and SCREECH (skid). The MOTOR SOUND is produced by performing a D/A conversion on the speed code (SPEED 5-SPEED 1), and using the result to drive a current source that controls the oscillation frequency of B3 (555). This frequency is divided by both 6 and 4 and various divisions are mixed. The HORN is a 760-Hz signal gated by the horn button input. CRUNCH is made by gating noise from a noise source (D5-1, LM324) with a discrete one-shot, triggered by $\overline{\text{CRASH}}$. The SCREECH sound is formed by an op amp (D5-14, LM324) configured as a free-running multivibrator. This oscillator is also perturbed by the noise source to give it a

DIRECTION CODE D4-D1, R0	HORIZONTAL INPUTS (H3) D C B A	VERTICAL INPUTS (K3) D C B A
0 0 0 0 0	0 1 0 0	1 1 0 0
0 0 0 0 1	0 0 1 1	1 1 0 0
0 0 0 1 0	0 0 1 1	1 0 1 1
0 0 0 1 1	0 0 1 0	1 0 1 1
0 0 1 0 0	0 0 0 1	1 0 1 1
0 0 1 0 1	0 0 0 1	1 0 1 0
0 0 1 1 0	0 0 0 1	1 0 0 1
0 0 1 1 1	0 0 0 0	1 0 0 1
0 1 0 0 0	0 0 0 0	1 0 0 0
0 1 0 0 1	0 0 0 0	0 1 1 1
0 1 0 1 0	0 0 0 1	0 1 1 1
0 1 0 1 1	0 0 0 1	0 1 1 0
0 1 1 0 0	0 0 0 1	0 1 0 1
0 1 1 0 1	0 0 1 0	0 1 0 1
0 1 1 1 0	0 0 1 1	0 1 0 1
0 1 1 1 1	0 0 1 1	0 1 0 0
1 0 0 0 0	0 1 0 0	0 1 0 0
1 0 0 0 1	0 1 0 1	0 1 0 0
1 0 0 1 0	0 1 0 1	0 1 0 1
1 0 0 1 1	0 1 1 0	0 1 0 1
1 0 1 0 0	0 1 1 1	0 1 0 1
1 0 1 0 1	0 1 1 1	0 1 1 0
1 0 1 1 0	0 1 1 1	0 1 1 1
1 0 1 1 1	1 0 0 0	0 1 1 1
1 1 0 0 0	1 0 0 0	1 0 0 0
1 1 0 0 1	1 0 0 0	1 0 0 1
1 1 0 1 0	0 1 1 1	1 0 0 1
1 1 0 1 1	0 1 1 1	1 0 1 0
1 1 1 0 0	0 1 1 1	1 0 1 1
1 1 1 0 1	0 1 1 0	1 0 1 1
1 1 1 1 0	0 1 0 1	1 0 1 1
1 1 1 1 1	0 1 0 1	1 1 0 0
STOP CODE	0 1 0 0	1 0 0 0

TABLE V-C: UNIT MOTION CODES INTO MOTION COUNTERS

"gritty" quality, and it is turned on and off by the SKID signal F4-8 (7406); the sounds are then mixed, buffered, and fed into a digitally controlled four-position master attenuator. The audio volume trimpot should be adjusted so that with the horn turned on, the signal at D5-8 (LM324) is 0.75 volt peak to peak. Finally, the audio signal is amplified by the LM380 power amp.

2-6. POWER SUPPLY PRINTED CIRCUIT BOARD

The power supply board has the circuitry for the unregulated supplies and for driving the coin mechanism lockout coils.

The unregulated supplies are both full-wave center-tap rectified configurations. The +9V supply may vary from 7.5V to nearly 11V, depending on line voltage at the transformer primary and the load current. It supplies the power for the +5V regulators on the logic PCBs. The +20V supply may vary from 8V to 22V, again depending on line and load conditions. It supplies power for the audio electronics on the car boards and for the lockout coil drivers.

The lockout coil driver should be active when the $\overline{\text{LO}}$n signal is high, i.e., when car n has credit. This turns transistor Qn on, powers the coil of relay Kn, and applies 20V to the lockout coil on coin mechanism n (activating the coil disengages the lockout function). The diode across the relay coil shorts inductive spikes of turn-off. The diode from the emitter of the transistor to ground increases noise immunity by raising the turn-on voltage of the transistor. The 100-ohm resistor from the relay coil to +20V is a current limit resistor to limit the dissipation in the relay and the transistor.

2-7. OPERATOR ADJUSTMENTS AND OPERATING INSTRUCTIONS

1. Adjustments

There are several adjustments available to the operator. These are:

a. Master volume switch (sync PCB).

b. Game time adjustment (coin control PCB).

c. Lockout coil power switch (power supply PCB).

The master volume switch adjusts the overall audio volume level to one of four possible levels. It is located on the sync PCB as shown in Figure I-A. Clockwise adjustment decreases volume; counterclockwise

adjustment increases the sound level. All of the car PCBs have their own separate volume controls. These are preset at the factory for balanced output levels and should be changed only by service personnel making repairs or adjustments to the car PCBs.

The game timer potentiometer is located on the coin control PCB in the upper corner near the front of the card rack. It adjusts the length of the game from approximately 75 seconds to nearly three minutes. Game time is increased by turning the pot downward or clockwise as seen from the front of the card rack.

The lockout coin power switch is located near the edge connector of the power supply PCB. If switched to the "off" position, all of the coils will go into the coin lockout mode, and the machine will not accept coins. This feature is useful in applications where an attendant collects payments manually and uses the remote panel to control the game. In order to use the coin mechanisms in the machine, this switch must be in the "on" position and power must be on.

2. Operating instructions

The unattended or automatic mode: after insuring that the machine is properly assembled and secure, apply power by inserting the power plug into a 105-125 VAC, 60-cycle, three-pronged or grounded receptacle rated for at least 5 amperes (600 watts). It will take a few minutes for the TV monitor to warm up. The game should come on in the attract mode (no sound or car motion). A coin in any slot will increment that coin counter, cause the lockout coil to engage, and reset that car to the starting line. After approximately eight seconds, the game will start (sound will come on and the cars may be driven). All cars that have not received credit will disappear from the TV screen. The eight-second delay allows all players to deposit their money before the game starts. Any player depositing money after the game starts will also get his car reset to the starting line and may play for the remainder of the game. The lockout coil power switch must be on, and the remote panel must be disconnected for this mode of operation.

The attended mode or using the remote panel: with power off (power cord disconnected), remove the side access panel. Guide the remote panel cable through the power cord outlet hole and into the machine. Connect the cable to the mating connector coming from the main harness just left of the card rack. If the coin mechanisms are to be used, the lockout coil power switch should be in the "on" position; it should be off if money will be collected manually. Put the access panel back into place. After insuring that the game is properly assembled and secure and that all toggle switches on the remote panel are in the "off" or downward position, apply power of 105-125 VAC, 60 cycles, 5 amperes, third terminal grounded.

If the coin mechanisms are used for money collection, the game will perform as in the automatic mode, except that to start the game the start button on the remote panel is used. All toggle switches on the remote panel should be in the "off" position at all times in this mode.

If money is collected manually, the cars for which payment has been received are enabled by toggling the appropriate switches on. Optionally, if all cars are to be enabled, the master switch in the center of the remote panel may be switched on. The game may be stopped at any time by disabling all the cars -- if a restart is desired or if a contest for a certain number of laps is desired. To start a game after setting the switches to their proper positions, push the "start" button.

2-8. <u>SERVICE AND TROUBLESHOOTING</u>

Indy 800 is sold with spare circuit boards for all boards in the card rack and one spare steering PCB. When inserting circuit boards into the card rack, take the following steps to insure that the game will not be damaged:

1. Be certain that the board is the proper type for that position and that it is not reversed. See Figure I-A for location of board types. Heatsinks should always be at the top of the board and to the right.

2. Be certain that the board is inserted straight into position in the card guides.

3. Pushing gently, wobble the board slightly until it begins to seat into the connector. If it does not begin to seat, recheck steps 1 and 2 and check for warpage of the board. Correct any problem.

4. Applying firm, constant pressure, push the board into place until it is seating fully. The front edge of the board should be flush with adjacent circuit boards. DO NOT use fast, jerky motions, as this could damage the backplane board or the edge connector.

When removing boards, always use the card ejector tool provided with the game. Hook the bolt of the tool into the hole in the uppermost corner of the circuit board. Using the frame of the card rack as a pivot, pull gently up to disengage the card from the backplane (see Figure VIII-A). Remove the ejector tool and pull the card out by hand.

When troubleshooting, the short description of each board in Section 1 should be a great help in quickly locating a problem. Replacing the suspect circuit board with a replacement gives quick verification of the source of the problem. To fix a circuit board, refer to the schematic and technical description provided in this manual. Repair of circuit boards should be attempted only by qualified technical personnel with proper equipment. As an additional aid to maintenance, the system has been designed so that all eight car PCBs are interchangeable. Also, removing one car board will only disable that car, without affecting any others.

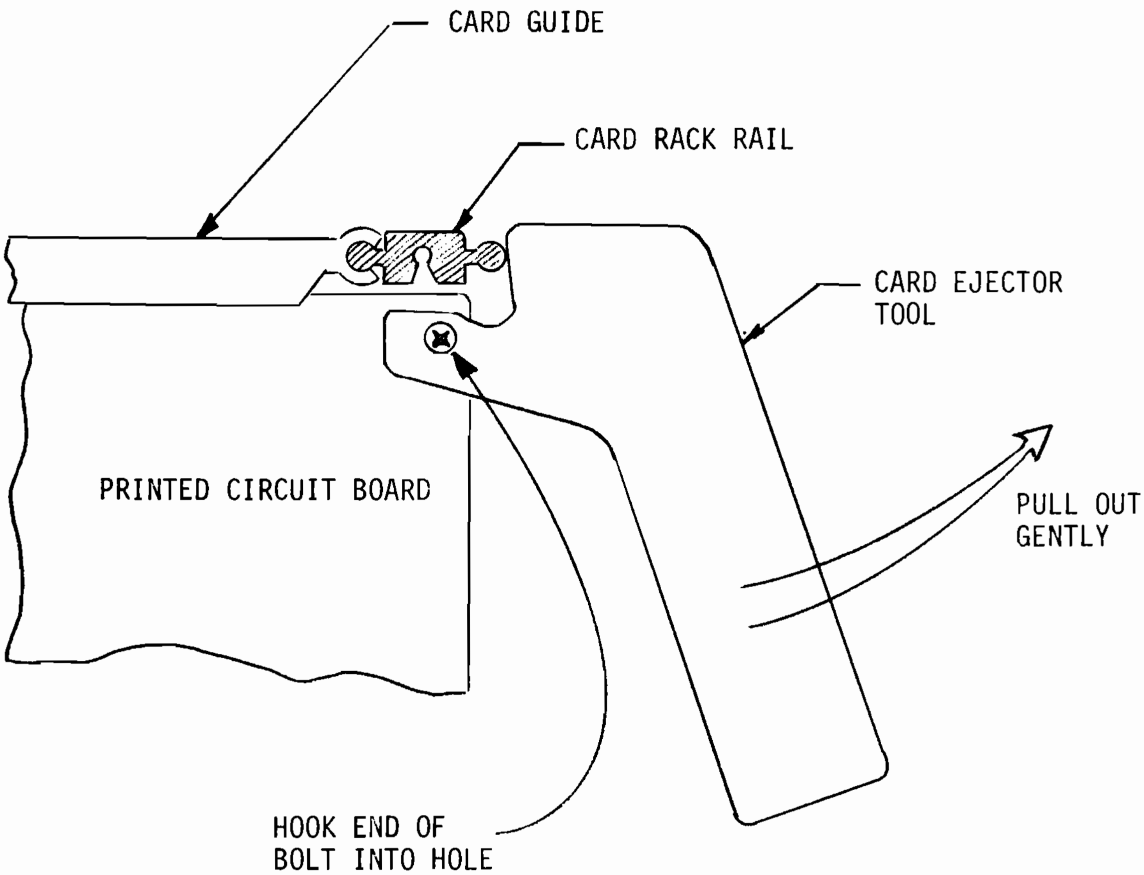


FIGURE VIII-A   USE OF THE CARD EJECTOR TOOL

3. CUSTOMER SERVICE INFORMATION

3-1. TEST EQUIPMENT

In order to test any Atari PCB, some items such as the logic probe are absolutely essential. Others are desirable and will make the test procedure easier but are not absolutely essential. Some of these instruments are available from the Atari Customer Service Department and these are: the Kurz-Kasch 520 Logic Probe, the Atari Video Probe and the Hewlett-Packard 10529A Logic Comparator. Other instruments that are very useful are the HP 10526T Logic Pulser and the Tektronix 465 Oscilloscope. These items are available through your local electronics supply house.

3-2. REQUIRED MINIMUM EQUIPMENT

The following items are absolutely essential to perform the test procedures presented in this manual:

1. Logic Probe: The logic probe is an instrument designed for checking the outputs of integrated circuits. The Kurz-Kasch Logic Probe, Model No. LP-520, which is available through the Atari Customer Service Department or most large electronics supply houses, is recommended. This logic probe indicates if a signal is logic high, logic low, or changing from one state to another. Consult the operating instructions included with the probe for further details about its operation.
2. Video Probe: The video probe is a very simple but extremely useful device and consists of two test clips, a length of rubber-coated, test lead wire, and a 4.7K, ¼-watt carbon resistor. Video probes may be obtained from the Atari Customer Service Department or, if necessary, they can be assembled from standard components available at all electronics supply houses.

3-3. OPTIONAL EQUIPMENT

It is possible to find 90% of the possible PCB computer malfunctions without the following items. However, if a complete set of trouble-shooting equipment is desired, Atari recommends:

1. Hewlett-Packard 10529A Logic Comparator
   The Hewlett-Packard 10529A Logic Comparator is used to verify correct IC operation. This device simply clips onto in-circuit ICs and instantly displays any logic state difference between the in-circuit test IC and the reference IC in the comparator. Logic differences for each pin of a 14 or 16 dual in-line package are indicated by a lamp on the comparator. If the logic comparator is purchased from the Atari Customer Service Department, it is shipped with 20 preprogrammed reference PCBs. If the device is purchased elsewhere, these PCBs must be specially programmed.
2. Hewlett-Packard 10526T Logic Pulser
   The Hewlett-Packard 10526T Logic Pulser is used to stimulate in-circuit ICs so that they are driven to their opposite states. This device is available from the Atari Customer Service Department or can be obtained from most large electronics supply houses.
3. Tektronix 465 Oscilloscope
   The Tektronix 465 Oscilloscope is used for viewing various wave forms and should be ordered from Tektronix. Consult the manufacturer's operating instructions for details on oscilloscope operation.

3-4. LOGIC TYPES AND FUNCTIONS

TYPE	FUNCTION
7400	QUAD 2-INPUT NAND GATE
7402	QUAD 2-INPUT NOR GATE
7404	HEX INVERTER
74S04	HEX INVERTER
7408	QUAD 2-INPUT AND GATE
7410	TRIPLE 3-INPUT NAND GATE
7413	DUAL NAND SCHMITT TRIGGER
7420	DUAL 4-INPUT NAND GATE
7425	DUAL 4-INPUT NOR WITH STROBE
7427	TRIPLE 3-INPUT NOR GATE
7430	SINGLE 8-INPUT NAND GATE
7448	BCD TO 7-SEGMENT DECODER
7450	DUAL AND/OR GATE (INVERTER/EXPANDER)
7474	DUAL D FLIP FLOP
7483	4-BIT FULL ADDER
7486	QUAD EXCLUSIVE OR GATE
7490	DECADE COUNTER
7492	DIVIDE-BY-12 COUNTER
7493	4-BIT BINARY COUNTER
74107	DUAL JK M/S FLIP FLOP
74153	DUAL 4-BIT MULTIPLEXER
74157	QUAD 2-INPUT DATA SELECTOR/MULTIPLEXER
74165	PARALLEL-LOAD 8-BIT SHIFT REGISTER
74192	SYNCHRONOUS DECADE UP/DOWN COUNTER

74193	SYNCHRONOUS BINARY UP/DOWN COUNTER
LM380	AMPLIFIER
NE555	TIMER
NE566	FUNCTION GENERATOR
747	DUAL OPERATIONAL AMPLIFIER
RC4136D	QUAD OPERATIONAL AMPLIFIER
MFC6040	VOLTAGE-CONTROLLED OPERATIONAL AMPLIFIER
8098	HYBRID
8103	HYBRID
8099	HYBRID
9311	ONE-OF-SIXTEEN DECODER/DEMULTIPLEXER
9312	8-INPUT MULTIPLEXER
9314	QUAD LATCH
9316	4-BIT BINARY COUNTER
9321	DUAL ONE-OF-FOUR DECODER
9602	DUAL MONOSTABLE MULTIVIBRATOR
74186	ROM

SECTION 4.

SCHEMATICS, DRAWINGS AND PARTS LISTS

Number	Title	
003347	Assembly Instructions	
000598-02	Parts List, Steering Wheel Assembly	
A000598-xx	Steering Wheel Assembly	
000607	Parts List, Steering PCB Assembly	
A000607	Steering PCB Assembly	
000589	Parts List, Foot Pedal Assembly	
A000589	Foot Pedal Assembly	
003153	Wire (Harness) Schematic	
003182	Schematic Parts List Assembly	Sync PCB
003170	Schematic Parts List Assembly	Score PCB
003184	Schematic Parts List Assembly	Coin Control PCB
003000	Schematic Parts List Assembly	Car PCB
003191	Schematic Parts List Assembly	Power Supply PCB
003199	Parts List Assembly	Backplane PCB
003193	Schematic Parts List Assembly	Remote Control PCB

ASSEMBLY INSTRUCTIONS

STEP 1. MOUNT CABINET TOP A002970 TO CABINET BASE A002967

NOTE: BLUE CAR LABEL ON CABINET TOP ASS'Y MUST BE PLACED OVER PC BOARD RACK AREA IN BASE CABINET ASS'Y

NOTE: SEE DETAIL "B", SHEET 2, FOR MOUNTING ASS'Y OF CABINET TOP TO BASE.

STEP 2. INSERT FOUR STEEL LEGS INTO BRACKETS ATTACHED TO TOP.

NOTE: EACH STEEL LEG HAS DETAIL HOLES THAT MATCH HOLES IN BRACKETS ON CABINET TOP. SEE DETAIL "C"

STEP 3. PLACE DISPLAY TOP ONTO STEEL LEGS MATCHING HOLES ON THE SHORT LEGS WITH THOSE ON THE LONG STEEL LEGS.

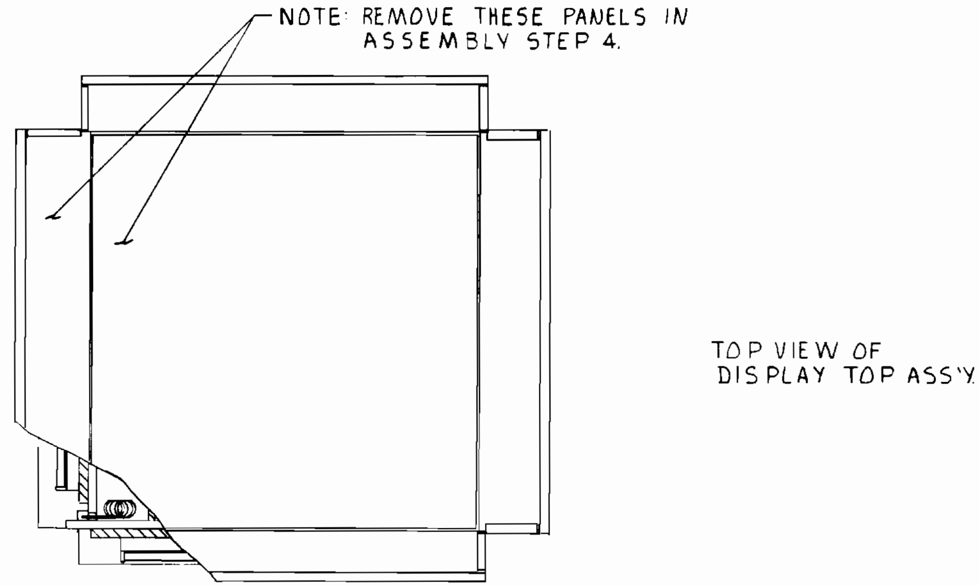
NOTE: SHORT STEEL LEG, IDENTIFIED WITH A PIECE OF TAPE MUST BE PLACED ON LONG STEEL LEG DIRECTLY ABOVE POWER SUPPLY BOARD IN CABINET BASE.

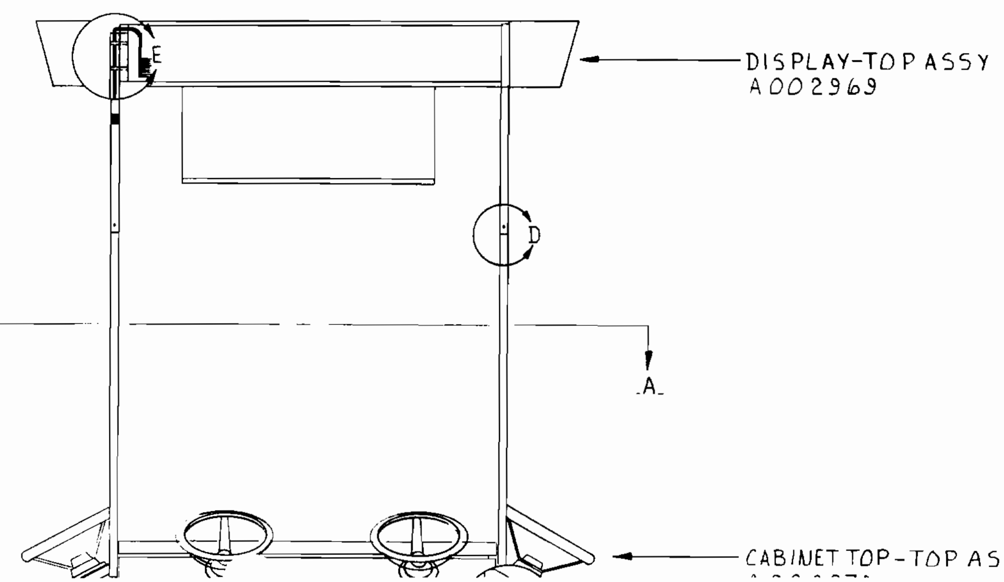
STEP 4. REMOVE COVER AND ONE ABS TOP PANEL FROM DISPLAY TOP ASS'Y, TO LOCATED DISPLAY TOP HARNESS THAT PASSES THROUGH MARKED STEEL LEG TO CONNECTION IN THE BASE. SEE DETAIL "A". REPLACE COVERS AFTER HARNESS IS CONNECTED.

STEP 5. CAREFULLY LOCATE MOUNTING HARDWARE THROUGH DETAIL HOLES IN LEGS. SEE DETAIL "C" AND "D"

NOTE: MOUNTING HARDWARE, DETAIL "C" REMOVE CONTROL PANEL ASS'Y FOR EASY ACCESS.

STEP 6. CONNECT ALL HARNESS BY OPENING COIN DOORS FOR EASY ACCESS.

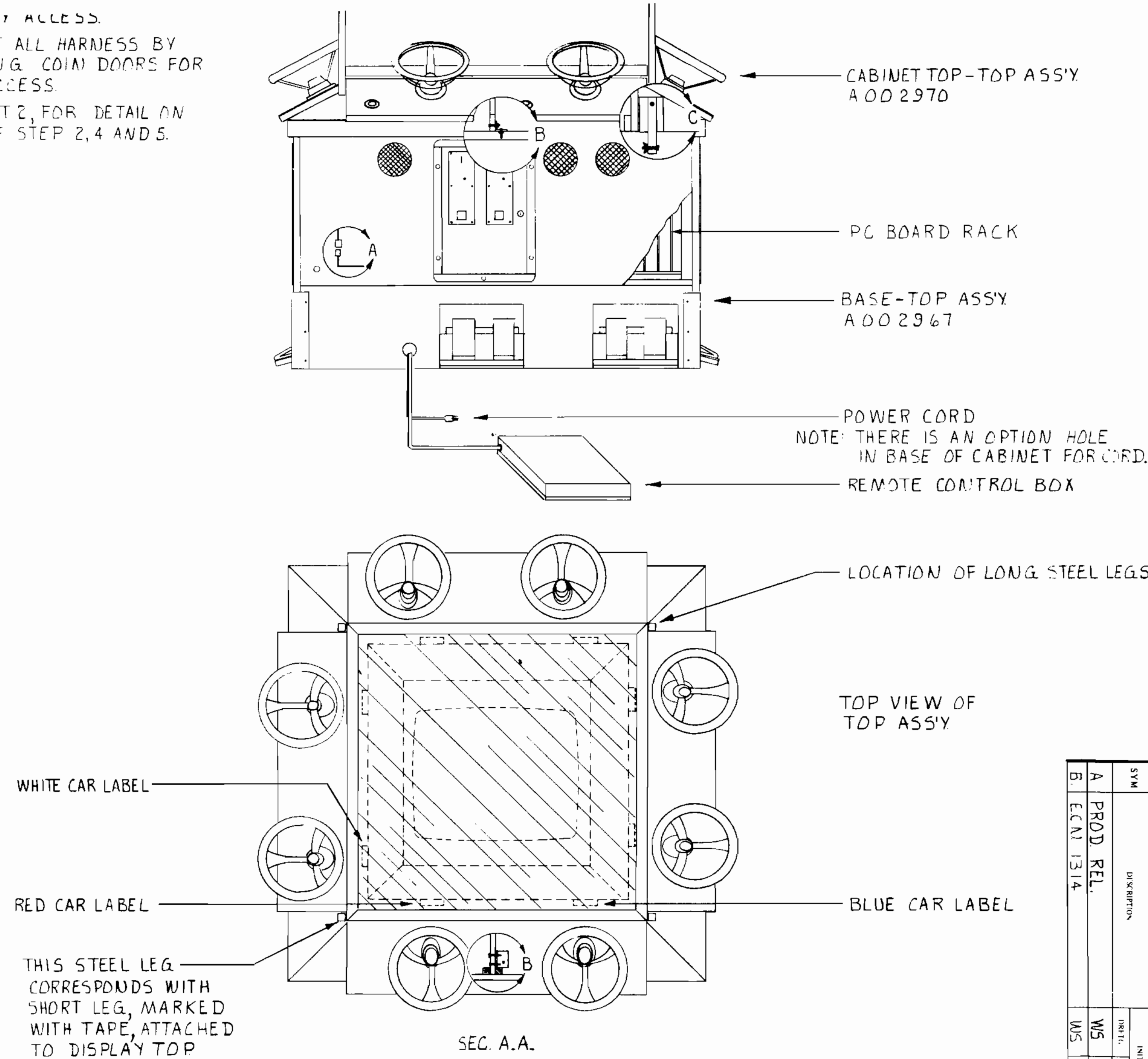




FOR EASY ACCESS.

STEP 6. CONNECT ALL HARNESS BY OPPENING COIN DOORS FOR EASY ACCESS.

NOTE: SEE SHEET 2, FOR DETAIL ON ASS'Y OF STEP 2, 4 AND 5.



REVISIONS

SYM	DESCRIPTION	DRFTG.	CHECK	ENGRG.
A	PROD. REL.	WS	3-5-75	
B.	E.C.N. 1314	WS	4-11-75	

NEXT ASSY	USED ON
	INDY 800
APPLICATION	

INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON

FRACTIONS = ±1/16 .X = ±.1
ANGLES = ±1° .XX = ±.03
SURFACE FINISH ✓ .XXX = ±.010

MATERIAL

DRAWN BY — DATE
CHECKED
DESIGN ENGINEER
PROJECT ENGINEER
DOCUMENT CONTROL
APPROVED

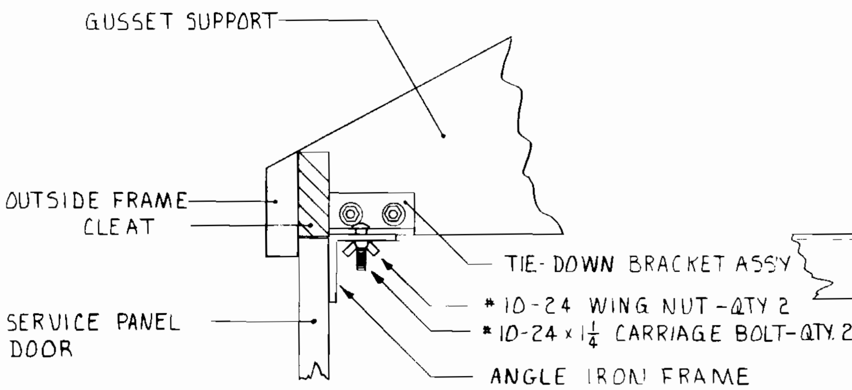
ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

TITLE: INDY 800
ASSEMBLY INSTRUCTIONS

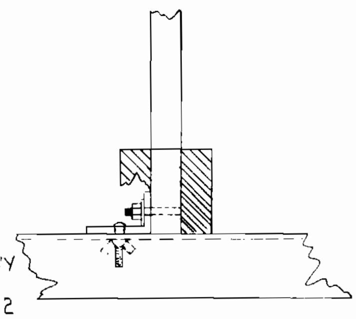
SIZE	DRAWING NO.	REV.
D	003347	B

SCALE: NONE — SHEET 1 OF 2

8 7 6 5



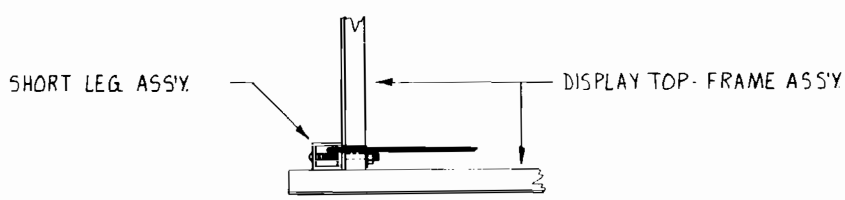
SIDE VIEW



END VIEW

DETAIL .B.

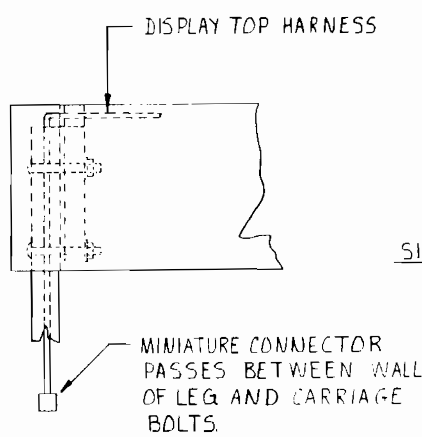
REFER TO STEP 1 OF ASS'Y INSTRUCTIONS - SHEET 1 of 2



TOP VIEW

DETAIL .E.

REFER TO STEP 4 OF ASS'Y INSTRUCTIONS - SHEET 1 of 2

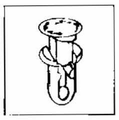


SIDE VIEW

8 7 6 5

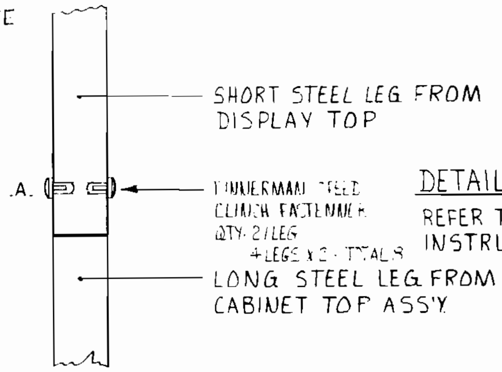
SYM	DESCRIPTION	DRFTG.	CHECK	ENGRG.
A	PROD. REL	WS	3-5-75	D
B	E.C.N 1314	WS	4-11-75	

NOTE: [illegible]



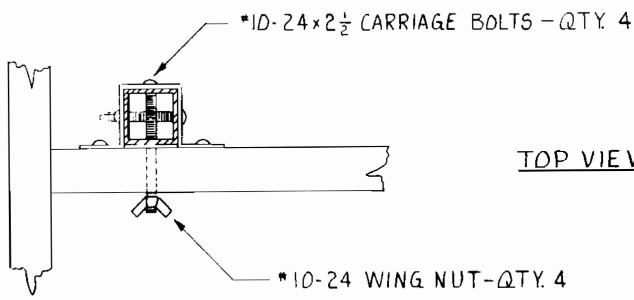
DETAIL A

MFR. PART NO. [illegible] BLACK

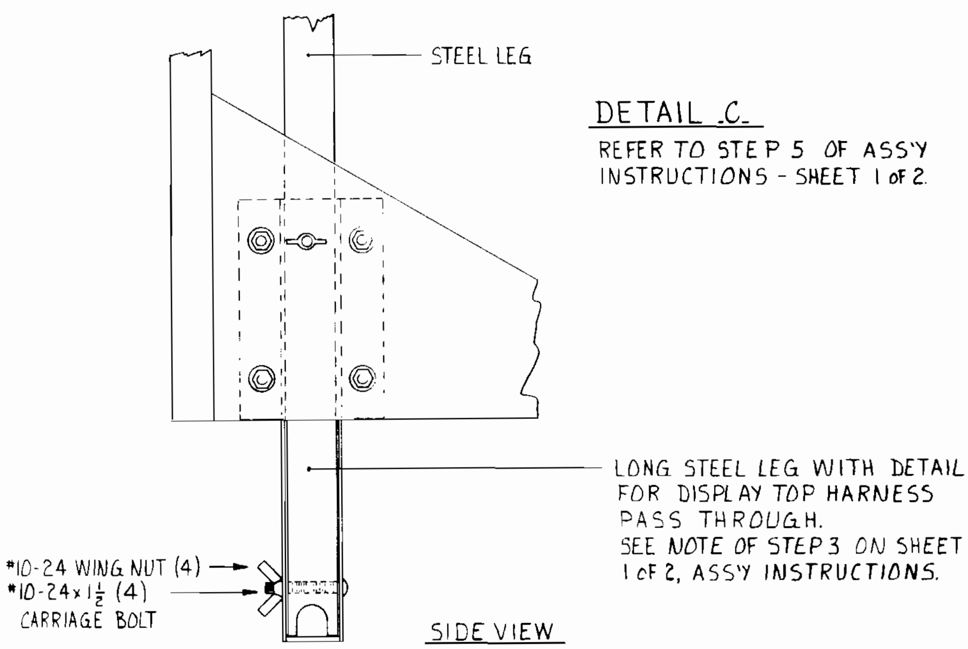


DETAIL D

REFER TO STEP 5 OF ASS'Y INSTRUCTIONS - SHEET 1 OF 2



TOP VIEW



DETAIL C

REFER TO STEP 5 OF ASS'Y INSTRUCTIONS - SHEET 1 OF 2.

SIDE VIEW

NEXT ASSY	USED ON
	INDY 800

APPLICATION

INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
FRACTIONS ±1/16 .X = ±.1
ANGLES = ±1° .XX = ±.03
SURFACE FINISH ✓ .XXX = ±.010

MATERIAL

DRAWN BY — DATE
CHECKED
DESIGN ENGINEER
PROJECT ENGINEER
DOCUMENT CONTROL
APPROVED

ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

TITLE: INDY 800 ASSEMBLY INSTRUCTIONS

SIZE: D | DRAWING NO.: 003347 | REV: B

SCALE: None | SHEET 2 OF 2

ATARI Innovative leisure

ASSEMBLY TITLE	INDY 800 STEERING WHEEL ASSY	P/L 000598-02

PARTS LIST SPECIFICATION — Page 1 of 1

Drawn	
Checked	Mech. Eng.
Proj. Eng.	Elec. Eng
	REV. G

Rev.	Description	Date	Apprv.	Rev.	Description	Date	Apprv.
A		2/6/75					
G	ECN 1131	4/14/75					

Item	Part Number	Qty.	DESCRIPTION
1	000598	Ref	Steering Wheel Assy (3201-3803)
2	002133	1	Cover, Kee Games Insigna
3	000605	1	Housing (3201-3545)
4	000606	1	Shaft (3201-3544)
6	72-7512	3	Screw, Mach, Fil. Hd, Phil #¼-20 x 3/4 Lg.
7	A000607	1	Printed Circuit Assy
8			
9	75-07002	2	Washer, Fender, ¼
10			
11	76-042020	1	Bearing, Thompson (20L20-F)
12	76-041010	1	Bearing, Thompson (10L10-F)
13	78-40102	1	Steering, Wheel 10"
14	75-945N	1	Nut, #¼-20, Nylon Lock
15	72-9580	1	Screw, Mach, Truss Hd, Slotted #¼-20 x 5 Lg.
16	000616	1	Hub Light
17	75-055	1	Washer, ¼" Int. Tooth, Starlock
18	78-16002	A/R	Silicone Grease, Compound #5
19	73-1208	2	MACH SCR. 2-56 x ½ PAN HD PH.

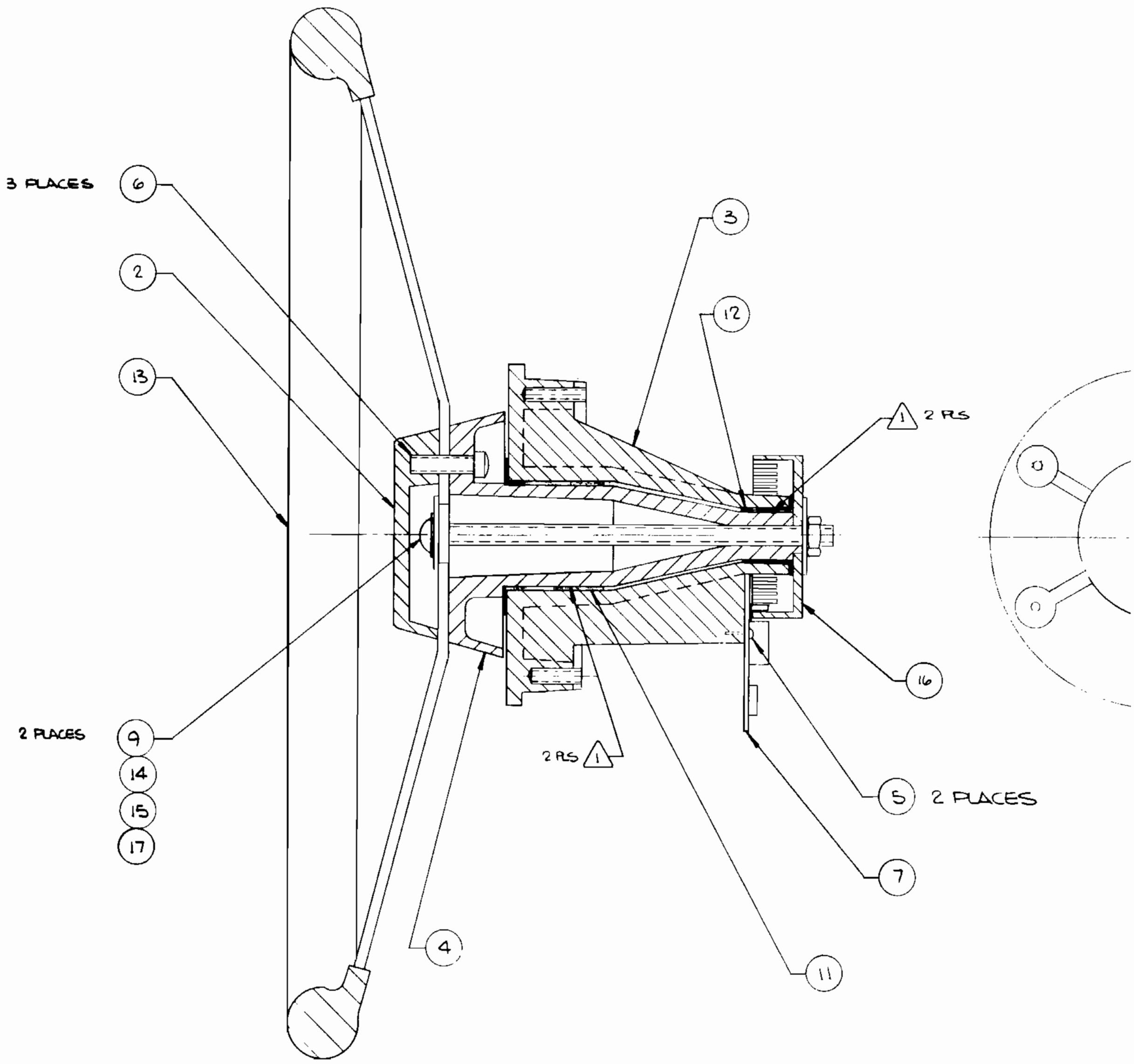
8 7 6 5

D

C

B

A



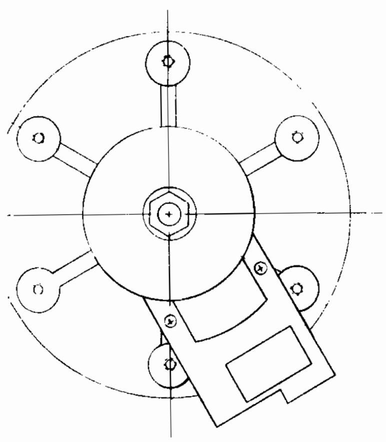
NOTES:

1. APPLY LIGHT FILM OF SILICONE GREASE #5 COMPOUND (OR EQUIV.) ON AREAS INDICATED. (ITEM 18)

2. VENDOR PART NO. 3201-3803

8 7 6 5

SYM	DESCRIPTION	DRFTG	CHECK	ENGRG
A	RELEASED FOR PROD	3-20-74		
B	REVISED PER ECN	3-21-74		
C	REVISED PER ECN 230	4-4-74		
D	REVISED PER ECN 270	4-4-74		
E	REVISED PER ECN 379	5-17-74		
F	REVISED PER ECN 526	6-19-74		
G	ECN 1131	2-14-75 WS		



ES

NOTE:

000598-01 - AS SHOWN

000598-02 - OMIT PART Nº 78-40101 ADD 78-40102

OMIT " " 000599 ADD 002133

INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON

FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .03
SURFACE FINISH ✓ .XXX ± .010

MATERIAL: SEE PL 000598

NEXT ASSY	USED ON
A002947	INDY 800
A000523	A000519

APPLICATION

DRAWN BY / DATE
CHECKED
DESIGN ENGINEER
PROJECT ENGINEER
DOCUMENT CONTROL
APPROVED

ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

TITLE: ASSEMBLY, STEERING WHEEL

SIZE: D | DRAWING NO: A000598-XX | REV: G

SCALE — | SHEET 1 OF 1

DRAWING NO A000598 SHEET 1 REV G

Job Title: RACETRAK STEERING PCB ASSY

Dwg. P/L 000607

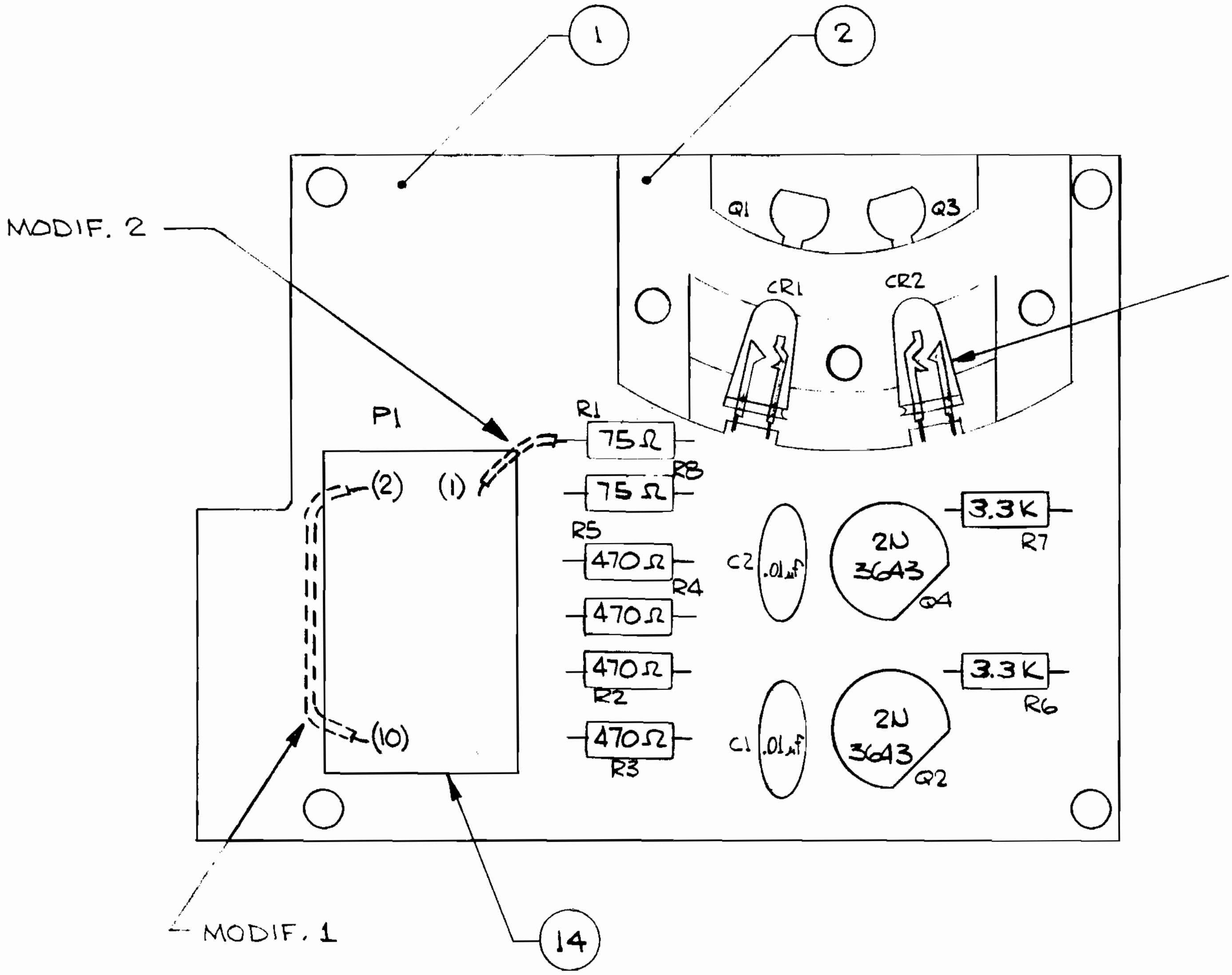
ATARI

Parts List Specification sheet 1 of 1

Drawn		
Checked	Mech. Eng.	Rev.
Proj. Eng	Elec. Eng.	M

Rev.	Description	Apprv.	Rev.	Description	Apprv.
H	Redesigned	5-6-74			
J	Rev per ECN 397 5/28/74				
K	Rev per ECN 457 6/3/74				
L	Rev per ECN 601 7/15/74				
M	Rev per ECN 1531				

Item	Part. No.	Qty.	Description
1	000614	1	Printed Circuit Board (E)
2	001092	1	Light Mount
3	001151	Ref	Schematic Diagram
4	11750/10-5750	2	Resistor, Comp., 75 ohm, ¼ watt, 5%
5	11471/10-5471	4	Resistor, Comp, 470 ohm, ¼ watt, 5%
6	11332/10-5332	2	Resistor, Comp, 3.3Kohm, ¼ watt, 5%
7	34104 /27-101103	2	Capacitor, Ceramic, .01uf
8	70006/38-2N5777	2	Transistor, 2N 5777 (Photo Darlington)
9	70000/34-2N3643	2	Transistor, 2N 3643
10	71008/38-ME7124	2	Light Emitting Diode, I.R. ME 7124
11			
12			
13			
14	80089 /79-58005		Connector, 10 pin, PC Mount, Amp #1-380991
15	72-1212S		Screw, Machine, Pan Head Phil, #2-56 x 3/4 Lg.
16	75-042	1	Washer, Split Lock #2
17	75-912S	1	Nut, Hex, #2-56
18	003749	1	Retainer, Led Light Mount



REFER TO SCHEMATIC 001151

A000598	
NEXT ASSY	
	APPLICATIO

REVISIONS

SYM	DESCRIPTION	DRFTG.	CHECK	ENGRG.
H	REDESIGNED	5-3-74		
J	REV. PER ECN 397	5-28-74		
K	REV. PER ECN 457	6-3-74		
L	REV PER ECN 601	7-16-74		
M	REV PER ECN 1531	7/8/75		

(10) 2 PLACES

MODIFICATIONS: FOR 000614 REV J P.C. BOARDS

1. JUMPER FROM PIN 2 TO PIN 10 OF THE 10 PIN CONNECTOR, ON CIRCUIT SIDE OF BOARD.
2. JUMPER FROM PIN 1 OF THE 10 PIN CONNECTOR TO THE PAD MARKED +5V (END OF R1) ON CIRCUIT SIDE OF BOARD.

MODIFICATIONS: FOR 000614 REV K P.C. BOARDS.

1. JUMPER FROM PIN 2 TO PIN 10 OF THE 10 PIN CONNECTOR, ON CIRCUIT SIDE OF BOARD.

INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:
FRACTIONS = ±1/16 .X = ± .1
ANGLES = ±1° .XX = ± .03
SURFACE FINISH ✓ .XXX = ± .010

MATERIAL
SEE PL 000607

98 A000519
USED ON
APPLICATION

DRAWN BY | DATE
CHECKED
DESIGN ENGINEER
PROJECT ENGINEER
DOCUMENT CONTROL
APPROVED

ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

TITLE
ASSEMBLY STEERING BOARD

SIZE: B | DRAWING NO: A000607 | REV: M
SCALE: 2:1 | SHEET 1 OF 1

Job Title	Dwg. P/L 000589
FOOT PEDAL ASSY	

Parts List Specification sheet 1 of 1

ATARI

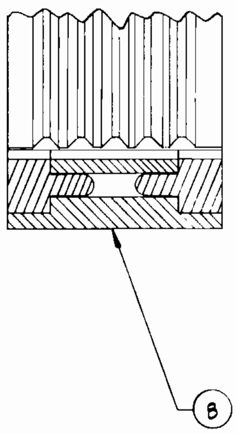
Drawn Patty		
Checked	Mech. Eng.	Rev.
Proj. Eng.	Elec. Eng.	G

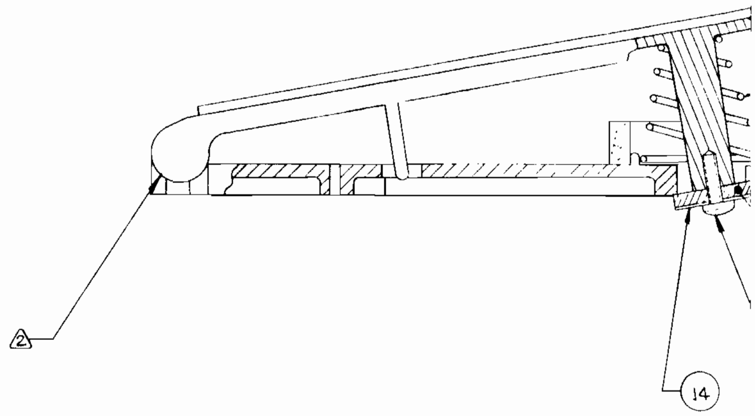
Rev.	Description	Apprv.	Rev.	Description	Apprv.
A	Release for Production	3/20/74	G	REV. PER ECN 969	12-3-74
B	Revise per ECN	3-21-74			
C	Rev per ECN 229	4-4-74			
D	Rev per ECN 382	5-20-74			
E	Rev per ECN 442	5/28/74			
F	Rev per ECN 460	6-6-74			

Item	Part. No.	Qty.	Description
1	A000589	Ref	Foot Pedal Assy (3201-3555)
2	000590	1	Foot Pedal (3201-3533)
3	000591	1	Pedal Foot (3201-3534)
4	000592	1	Spring (3201-3550)
5	000593	1	Bumper (3201-3551)
6	000594	1	Stop Washer (3201-3552)
7			
8	000597	1	Bearing Block (3201-3549)
9			
10			
11	75199/72-1508S	1	Screw, mach., Pan Hd, Phil #¼-20 x ½ lg
12			
13			
14	75-7002/75409	1	Washer, Fender ¼
15			
16			
17	83268	A/R	Silicone Grease Compound #5
18	84012	A/R	Contact Cement

8 7 6 5

D





C

B

NOTES:

1. TACK ITEM 5 TO ITEM 3 WITH 3M1357 CONTACT ADHESIVE.

2. APPLY LIGHT SMEAR SILICONE GREASE #5 COMPOUND (OR EQUIV.) ON AREAS INDICATED. (ITEM 18)

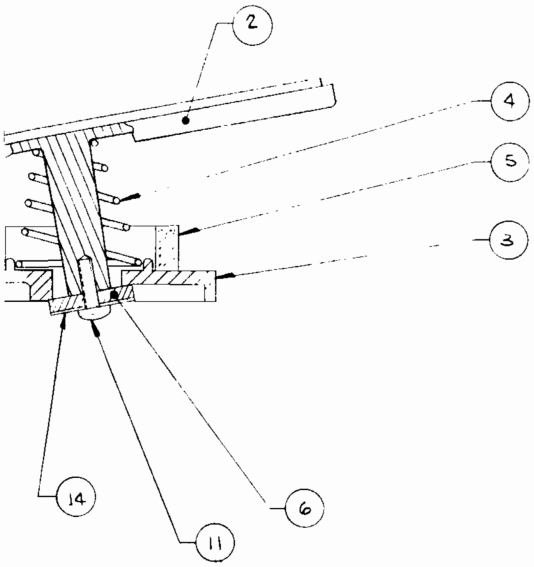
A

8 7 6 5

REVISIONS

SYM	DESCRIPTION	INITIALS and DATE: DRFTG	CHECK	ENGRG
A	RELEASED FOR PROD	3-20-74		
B	PER ECN 194			
C	REVISED PER ECN 229	4-5-74	D. COOK	
D	REVISED PER ECN 382	5-20-74		
E	REVISED PER ECN 442	5-28-74		
F	REVISED PER ECN 460	6-6-74	WAD 6/7	
G	REVISED PER ECN 969	12-3-74		

D



C

B

A000589 | SHEET 1 | REV G

A

NEXT ASSY	USED ON
A002271	INDY 800
A001022	A000519

APPLICATION

INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS = ±1/16 .X = ±.1
ANGLES = ±1° .XX = ±.03
SURFACE FINISH ✓ .XXX = ±.010

MATERIAL
SEE P/L A000589

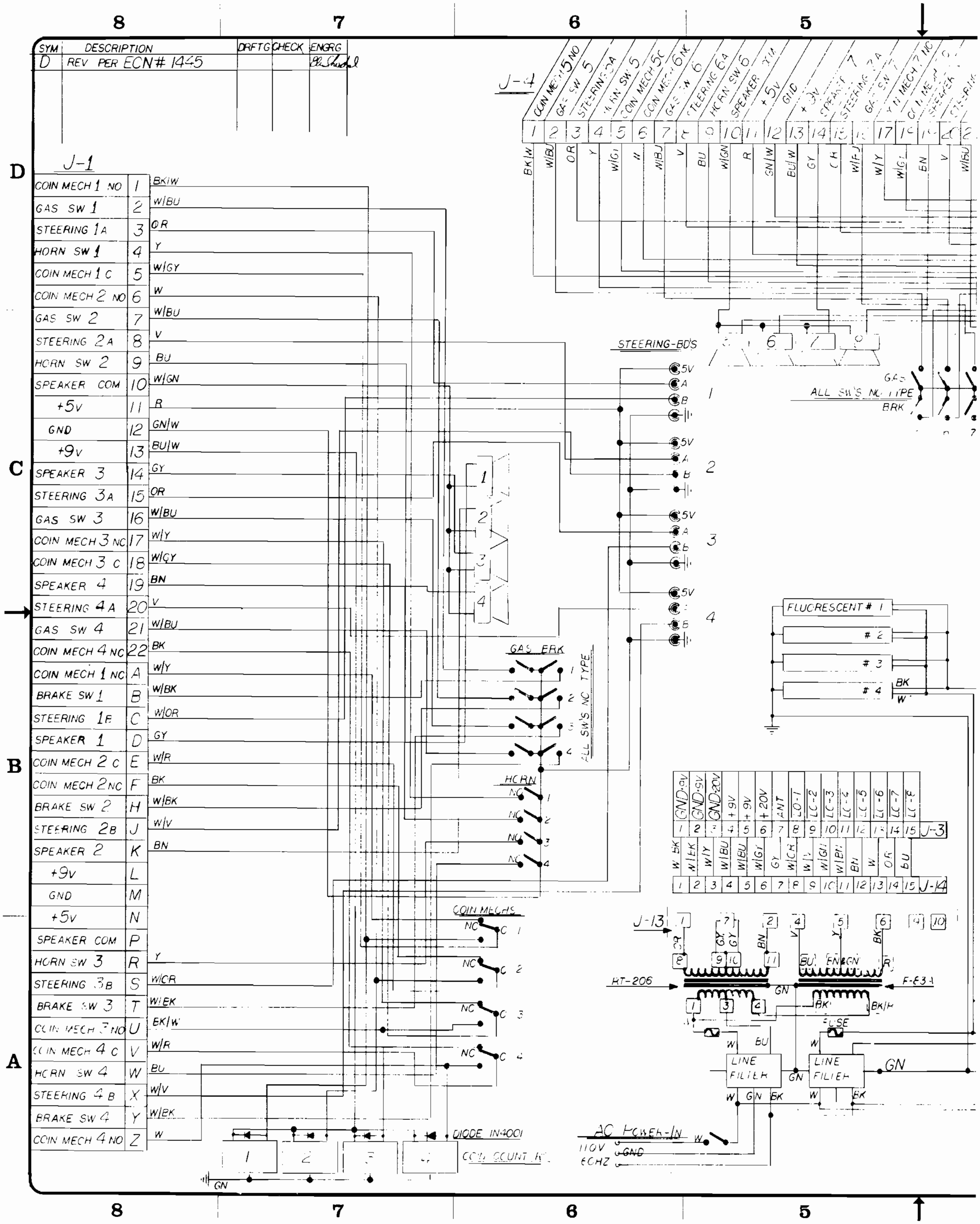
DRAWN BY — DATE
CHECKED
DESIGN ENGINEER
PROJECT ENGINEER
DOCUMENT CONTROL
APPROVED

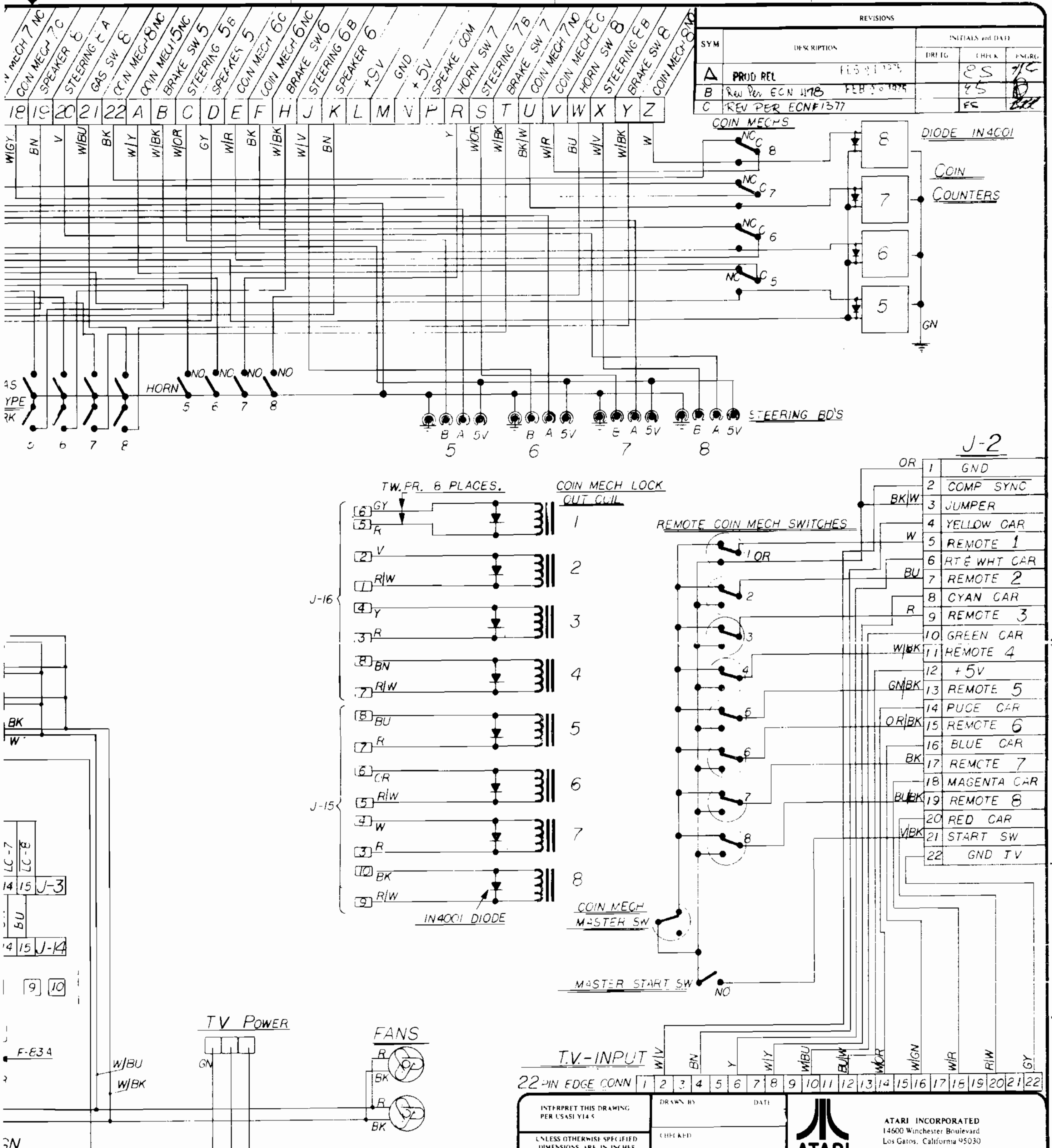
ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

TITLE
ASSEMBLY
FOOT PEDAL

SIZE D | DRAWING NO. A000589 | REV G
SCALE — | SHEET 1 OF 1

SYM	DESCRIPTION	DRFTG	CHECK	ENGRG
D	REV PER ECN# 1445			





SYM	DESCRIPTION	INITIALS and DATE		
		DRFTG	CHECK	ENGRG
A	PROD REL FEB 21 1975			
B	Rev Per ECN 1178 FEB 26 1975			
C	REV PER ECN 1377			

INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
FRACTIONS ±1/16 .XX = ±.1
ANGLES = ±1° .XX = ±.03
SURFACE FINISH .XXX = ±.010

MATERIAL

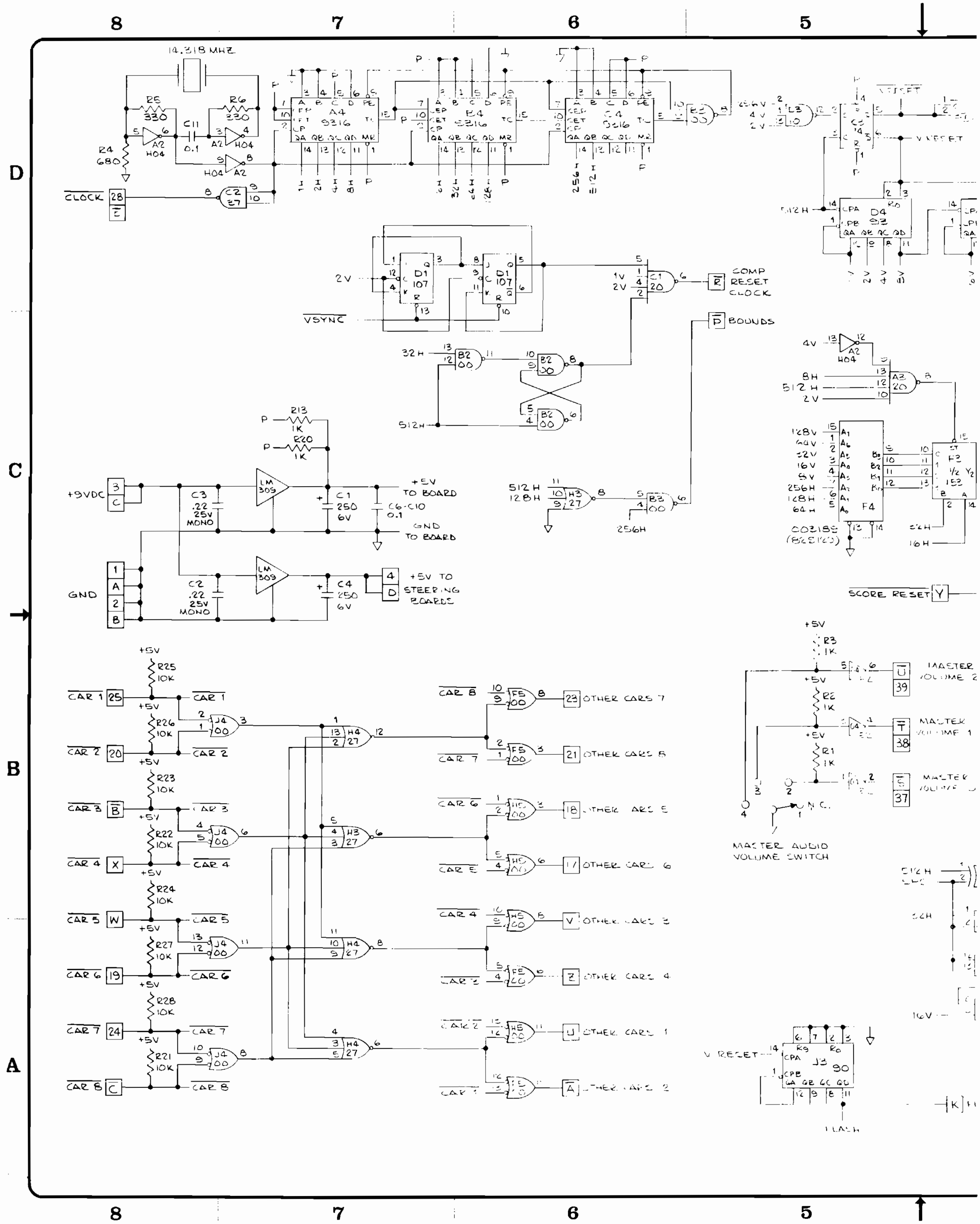
DRAWN BY — DATE
CHECKED
DESIGN ENGINEER
PROJECT ENGINEER
DOCUMENT CONTROL
APPROVED

NEXT ASSY — USED ON
APPLICATION

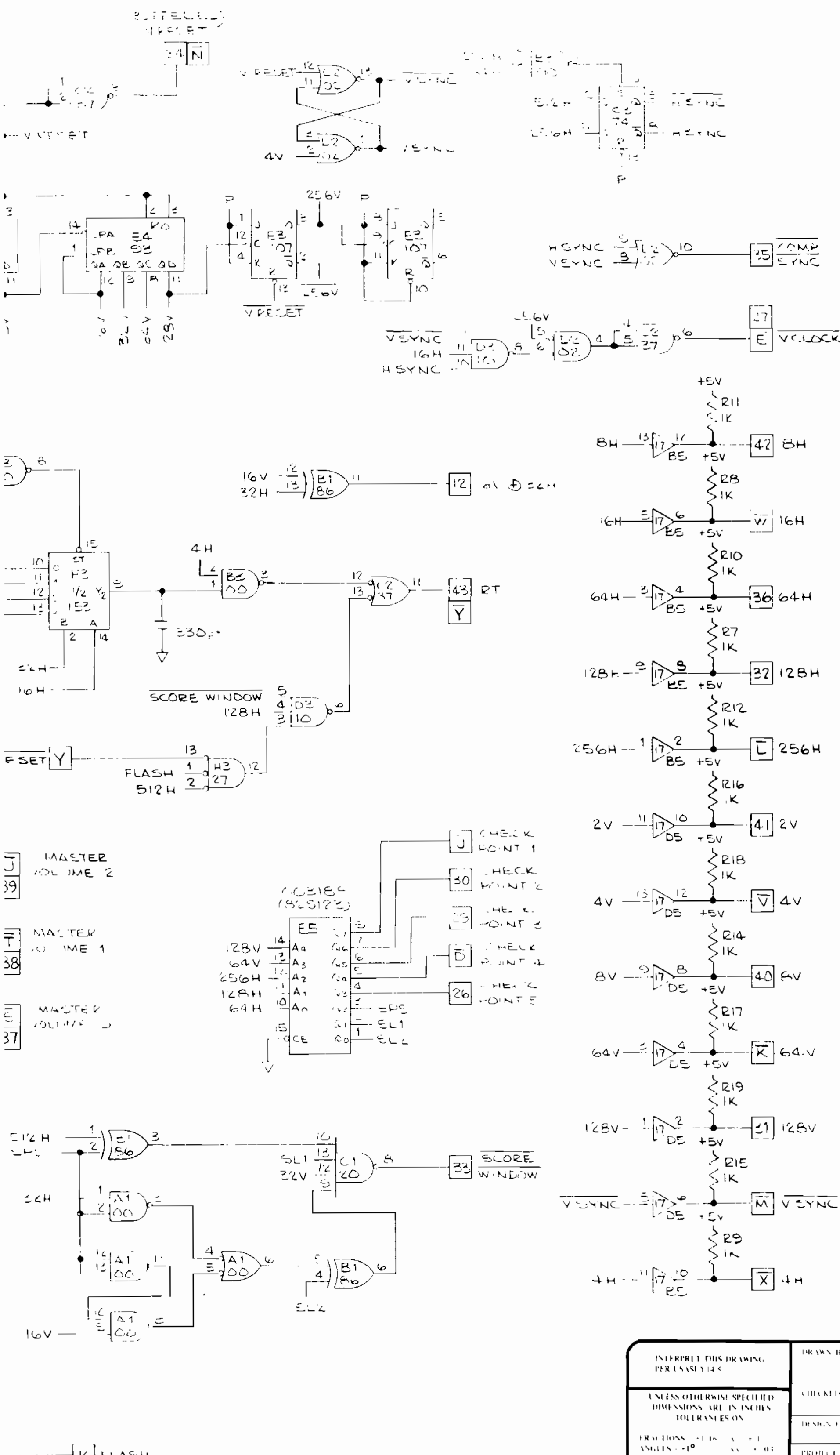
ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

TITLE INDY-800 WIRE-SCHEMATIC

SIZE D — DRAWING NO. 003153 — REV D
SCALE — SHEET — OF



14.318 MHZ
R5 330
R6 330
C11 0.1
R4 680
A2 H04
CLOCK 28
A4 9316
B4 9316
C4 9316
VSYNC
COMP RESET CLOCK
BOUNDS
D1 107
C1 20
B2 00
V RESET
D4 93
F4
F3 1/2 153
H3 27
B3 00
+9VDC
GND
LM 309
C3 .22 25V MONO
C2 .22 25V MONO
C1 250 6V
C4 250 6V
C6-C10 0.1
+5V TO BOARD
GND TO BOARD
+5V TO STEERING BOARDS
SCORE RESET
R13 1K
R20 1K
R3 1K
R2 1K
R1 1K
MASTER VOLUME 2
MASTER VOLUME 1
MASTER AUDIO VOLUME SWITCH
CAR 1
CAR 2
CAR 3
CAR 4
CAR 5
CAR 6
CAR 7
CAR 8
R25 10K
R26 10K
R23 10K
R22 10K
R24 10K
R27 10K
R28 10K
R21 10K
J4 00
H4 27
H3 27
F5 00
H5 00
OTHER CARS 7
OTHER CARS 8
OTHER CARS 5
OTHER CARS 6
OTHER CARS 3
OTHER CARS 4
OTHER CARS 1
OTHER CARS 2
J3 90
FLASH



REVISIONS

SYM	DESCRIPTION	INITIALS & DATE: DRFTD	CHECK	ENGRG
E	PRODUCTION RELEASE	2/19/75		
C	REVISED PER ECN 1160	2/26/75		
D	REVISED PER ECN 1282	3/25/75		
E	REVISED PER ECN 1390	4/22/75		

A002182 | LT3 ... | NEXT ASSY | USED ON
APPLICATION

INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: FRACTIONS ±1/16 | ANGLES ±1° | SURFACE FINISH ✓ | .XX ±.03 | .XXX ±.010

MATERIAL

DRAWN BY | DATE
CHECKED
DESIGN ENGINEER
PROJECT ENGINEER
DOCUMENT CONTROL
APPROVED

ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

TITLE: SCHEMATIC, SYNC BOARD

SIZE: D | DRAWING NO.: 003182 | E

SCALE

ATARI Innovative leisure

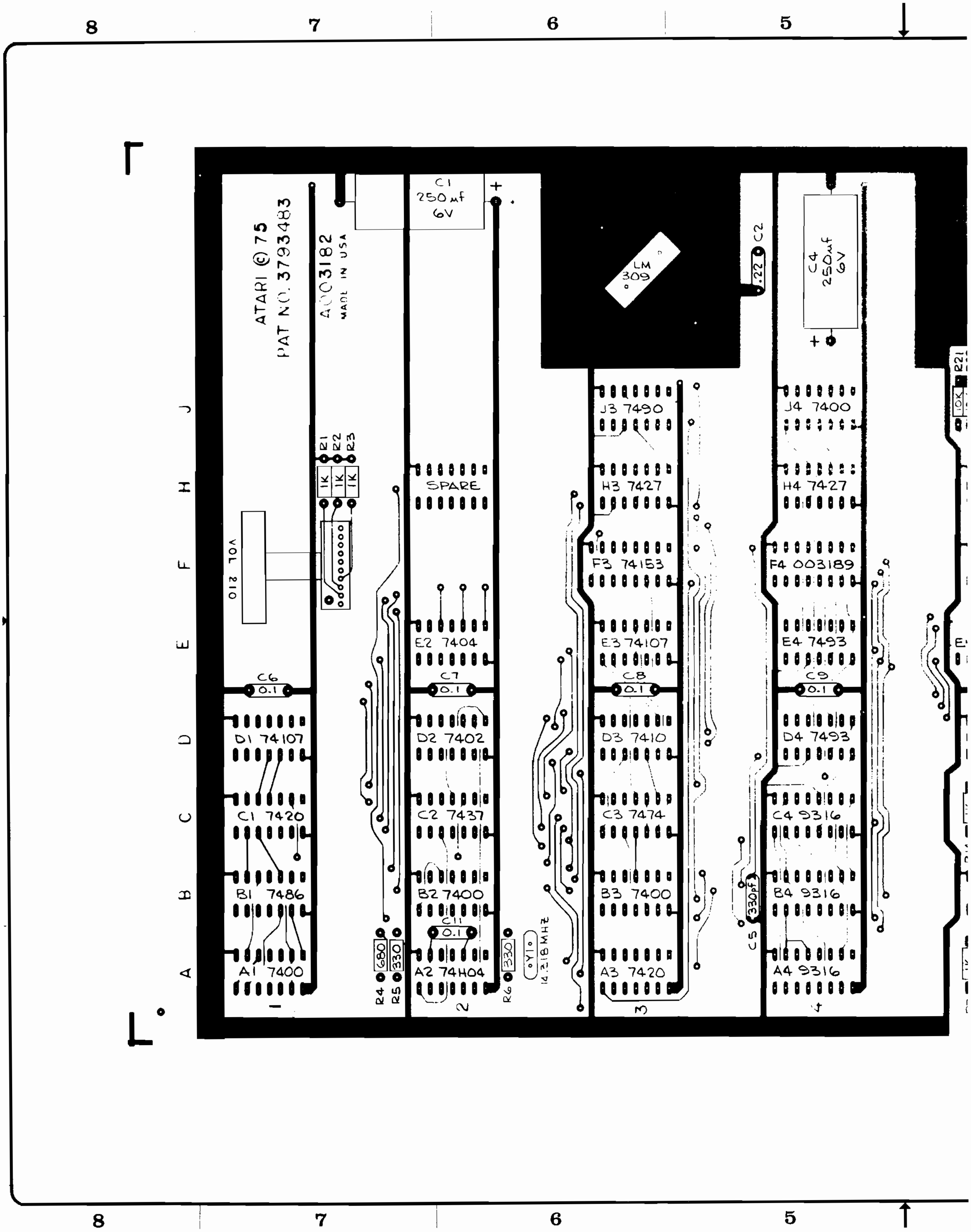
ASSEMBLY TITLE	RT8 SYNC BOARD	P/L003182

PARTS LIST SPECIFICATION — Page 1 of 1

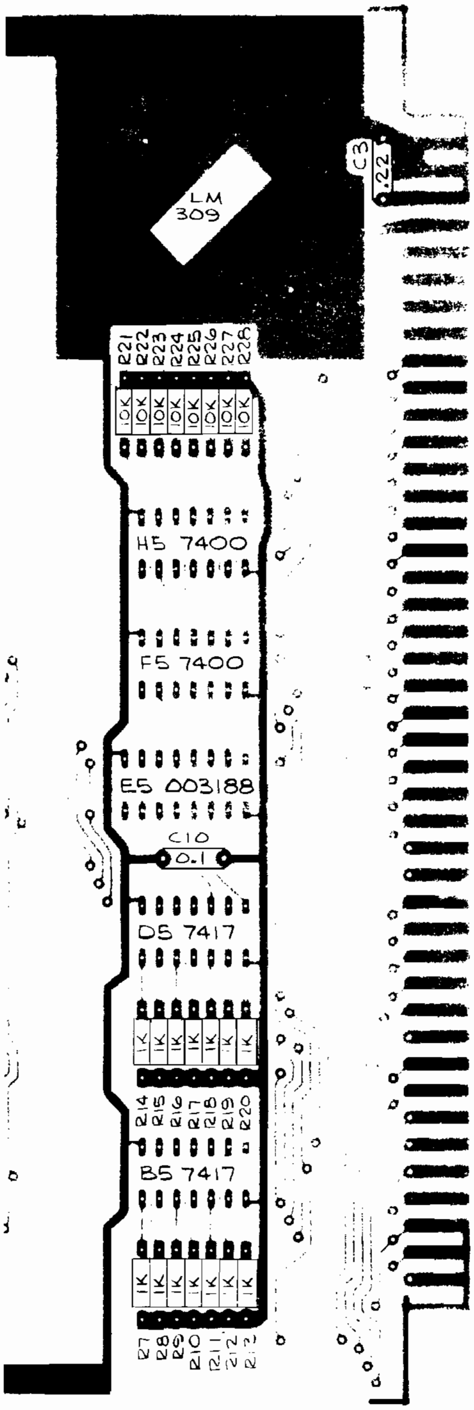
Drawn	
Checked	Mech. Eng.
Proj. Eng.	Elec. Eng
	REV. E

Rev.	Description	Date	Apprv.	Rev.	Description	Date	Apprv.
A		2-4-75	[illegible]				
B	[illegible]	[illegible]	[illegible]				
C	[illegible]		[illegible]				
D	[illegible]	[illegible]	[illegible]				
E	[illegible]	[illegible]	[illegible]				

Item	Part Number	Qty.	DESCRIPTION
1	003183	1	Printed Circuit Board
2	37-LM309	2	LM309K Positive 5-Volt Regulator
3	78-06004	2	Heatsink, Wakefield 680-.75A
4	72-1610S	4	Screw, Mach, , Pn Hd, Phil, 6-32 x 5/8"
5	75-916S	4	Nut, Machine, Hex, 6-32
6			
7	75-056	4	Lock Washer, Internal Star, #6
8	66-071P4T	1	Rotary Switch, P.C. Mount, 1P-4T, Grayhill #71AF36-01-1-04-N
9	73-802	1	Switch Knob (Raytheon #50-5-1)
10	37-7400	6	7400 Integrated Circuit
11	37-7402	1	7402 " "
12	37-74H04	1	74H04 " "
13	37-7410	1	7410 " "
14	37-7417	2	7417 " "
15	37-7420	2	7420 " "
16	37-7427	2	7427 " "
17	37-7437	1	7437 " "
18	37-7474	1	7474 " "
19	37-7486	1	7486 " "
20	37-7490	1	7490 " "
21	37-7493	2	7493 " "
22	37-74107	2	74107 " "
23	37-74153	1	74153 " "
24	37-9316	3	9316 " "
25	003188	1	P-ROM, RT8 Check Points, 32 x 8, 256 Bit
26	003189	1	P-ROM, RT8 Racetrack, 256 x 4, 1024 Bit
27	90-101	1	14.318MHZ Crystal
28	10-5331	2	Resistor, Carbon, 5%, ¼W, 330 ohm
29	10-5681	1	Resistor, Carbon, 5%, ¼W, 680 ohm
30	10-5102	17	Resistor, Carbon, 5%, ¼W, 1K ohm
31	10-5103	8	Resistor, Carbon, 5%, ¼W, 10K ohm
32	28-101331	1	Capacitor, Mica, 330pf, 100V
33	27-101104	6	Capacitor, Ceramic, 0.1µf, 100V
34	29-011	2	Capacitor, Monolythic, .22µf, 12V
35	24-060257	2	Capacitor, Electrolytic, 250µf, 6V
36	37-7404	1	7404 INTEGRATED CIRCUIT
37	79-42116	2	SOCKET, I.C., 16 PIN


ATARI © 75
PAT NO. 3793483
A003182
MADE IN USA
C1 250 mf 6V
LM 309
C2 .22
C4 250 mf 6V
R21
10K
J3 7490
J4 7400
R1 R2 R3
1K 1K 1K
SPARE
H3 7427
H4 7427
VOL 210
F3 74153
F4 003189
E2 7404
E3 74107
E4 7493
C6 0.1
C7 0.1
C8 0.1
C9 0.1
D1 74107
D2 7402
D3 7410
D4 7493
C1 7420
C2 7437
C3 7474
C4 9316
B1 7486
B2 7400
B3 7400
B4 9316
C5 330pf
C11 0.1
680 330 330
R4 R5 R6
Y1 14.318 MHz
A1 7400
A2 74H04
A3 7420
A4 9316
1 2 3 4
A B C D E F H J
8 7 6 5

REVISIONS				
SYM	DESCRIPTION	INITIALS and DATE		
		DRFTG	CHECK	ENGRG
E	REVISED PER ECN 1330	4/22/75		



NOTES:

1. INSTALL ITEM 37 (16 PIN I.C. SOCKET) IN POSITIONS F4 AND E5.
2. THIS ASSEMBLY DRAWING TO BE USED WITH 003183 REV B P.C. BD.

NEXT ASSY	USED ON
	INDY 800
APPLICATION	

INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON

FRACTIONS ± 1/16 .X = ± .1
ANGLES ± 1° .XX = ± .03
SURFACE FINISH ✓ .XXX = ± .010

MATERIAL: SEE P/L 003182

DRAWN BY / DATE

CHECKED

DESIGN ENGINEER

PROJECT ENGINEER

DOCUMENT CONTROL

APPROVED

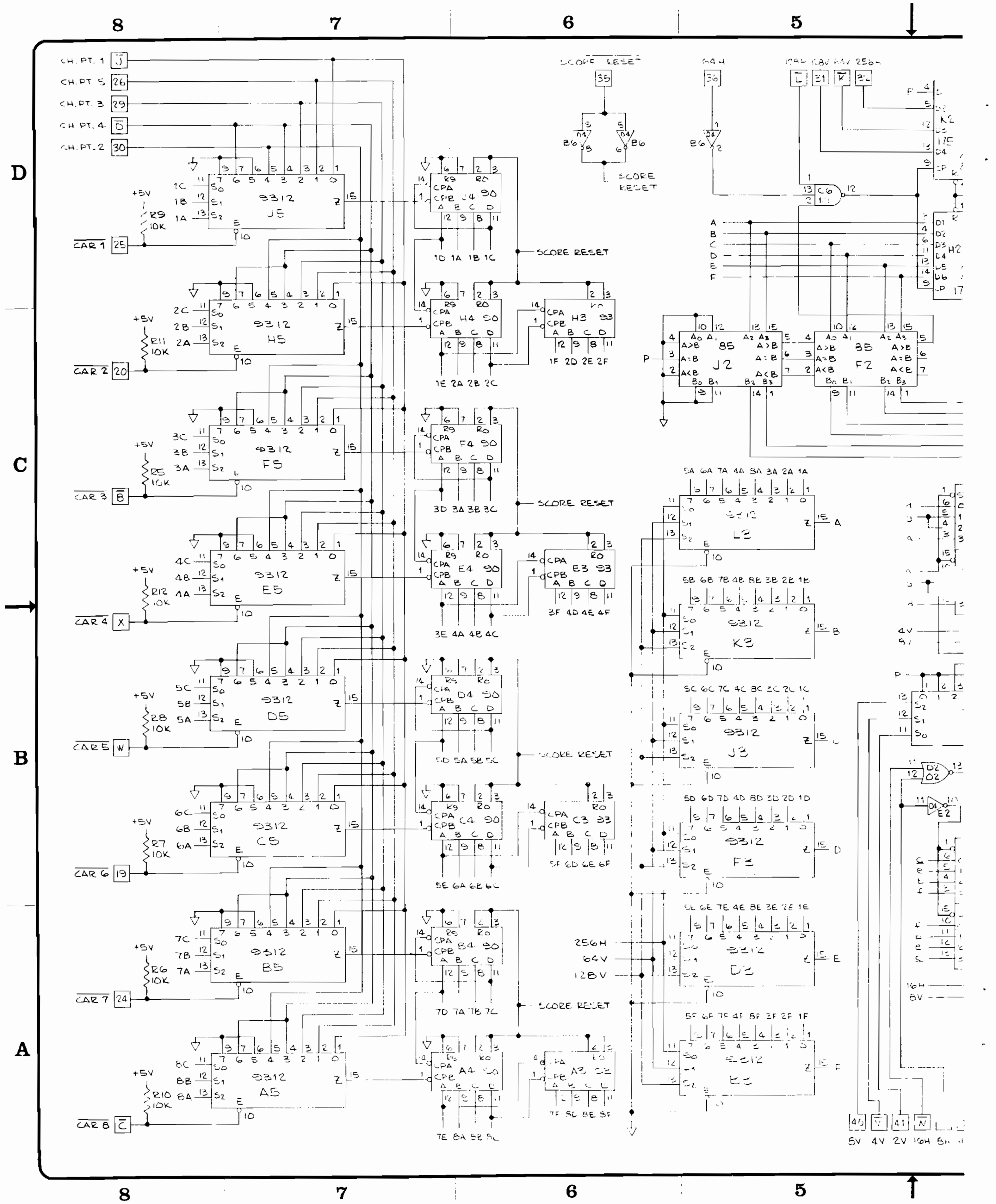
ATARI

ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

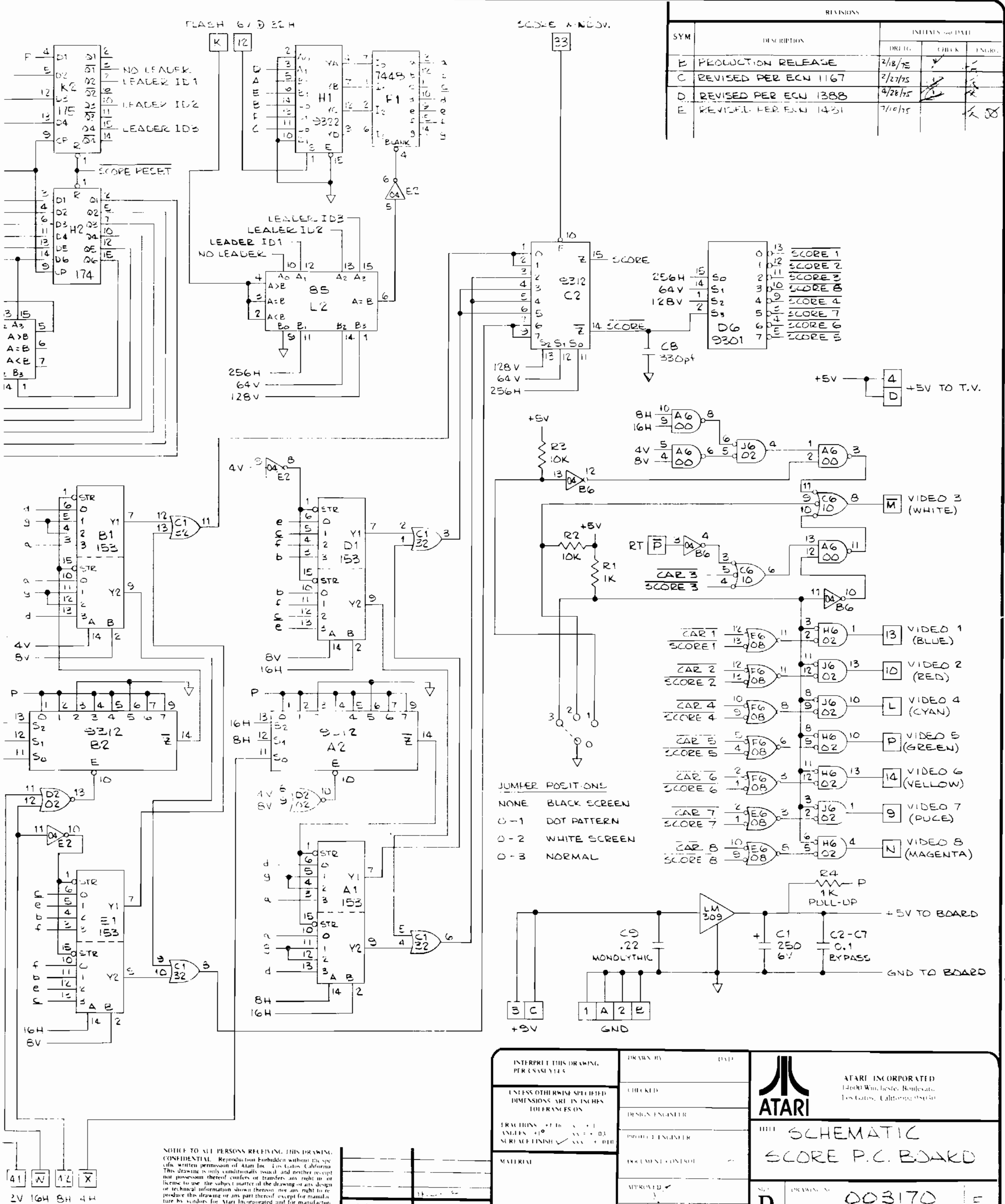
TITLE: ASSEMBLY, SYNC BOARD

SIZE: D | DRAWING NO.: A003182 F

SCALE: 2/1



8
7
6
5
D
C
B
A
CH. PT. 1
CH. PT. 5
CH. PT. 3
CH. PT. 4
CH. PT. 2
CAR 1
CAR 2
CAR 3
CAR 4
CAR 5
CAR 6
CAR 7
CAR 8
+5V
9312
J5
H5
F5
E5
D5
C5
B5
A5
90
J4
H4
F4
E4
D4
C4
B4
A4
93
H3
E3
C3
A3
SCORE RESET
85
J2
F2
L3
K3
J3
F3
D3
B3
256H
64V
128V
5V
4V
2V
16H



REVISIONS

SYM	DESCRIPTION	DRFTG	CHECK	ENGRG
B	PRODUCTION RELEASE	2/18/75		
C	REVISED PER ECN 1167	2/27/75		
D	REVISED PER ECN 1388	4/28/75		
E	REVISED PER ECN 1431	7/10/75		

NEXT ASSY | USED ON
APPLICATION

INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
FRACTIONS ±1/16 … ANGLES ±1° … SURFACE FINISH ✓ … XX = ±.03, XXX = ±.010

MATERIAL

DRAWN BY | DATE
CHECKED
DESIGN ENGINEER
PROJECT ENGINEER
DOCUMENT CONTROL
APPROVED

ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

TITLE SCHEMATIC SCORE P.C. BOARD

SIZE D | DRAWING NO. 003170 | E

SCALE [illegible]

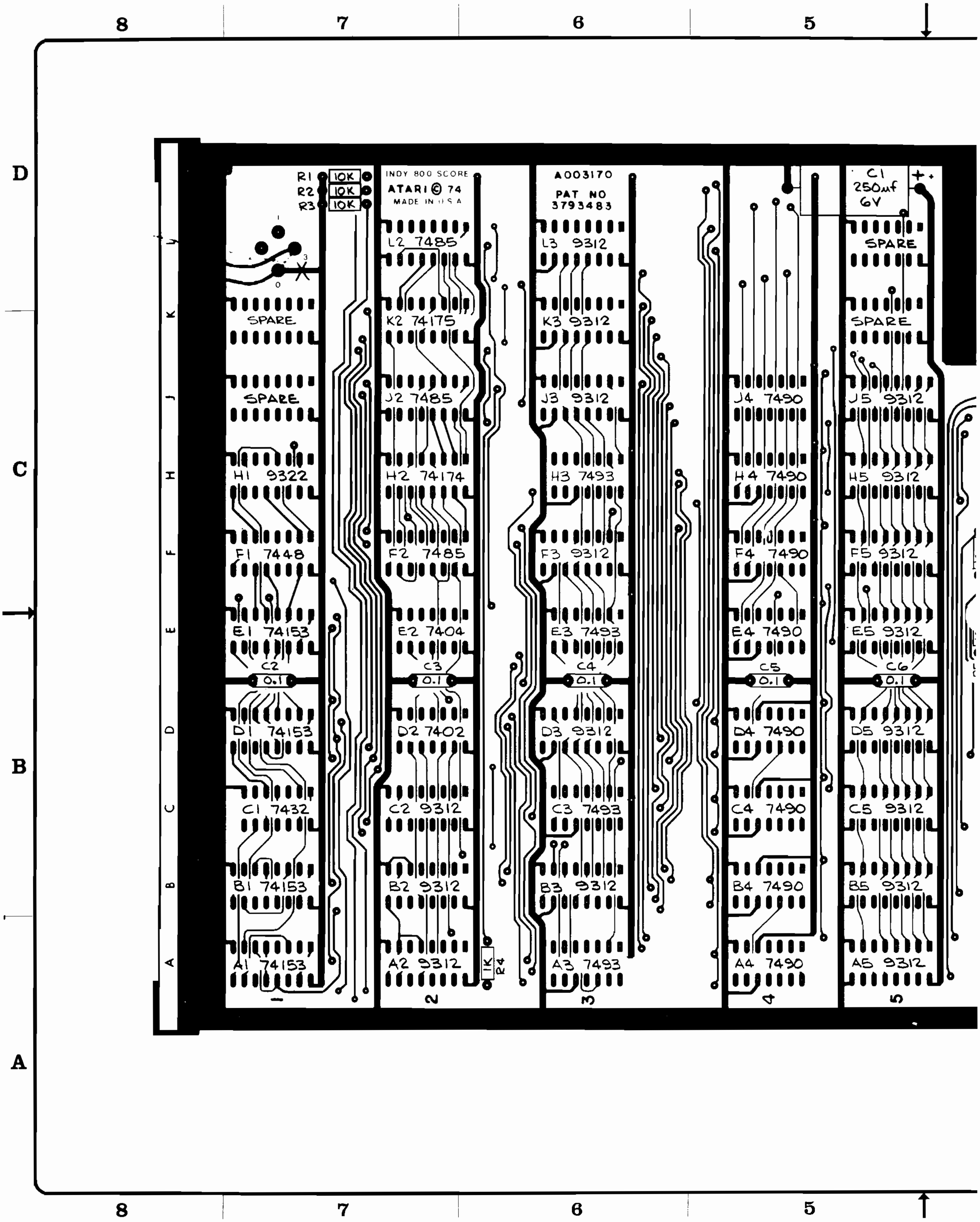
ATARI Innovative leisure

ASSEMBLY TITLE	RT8 SCORE BOARD	P/L 003170

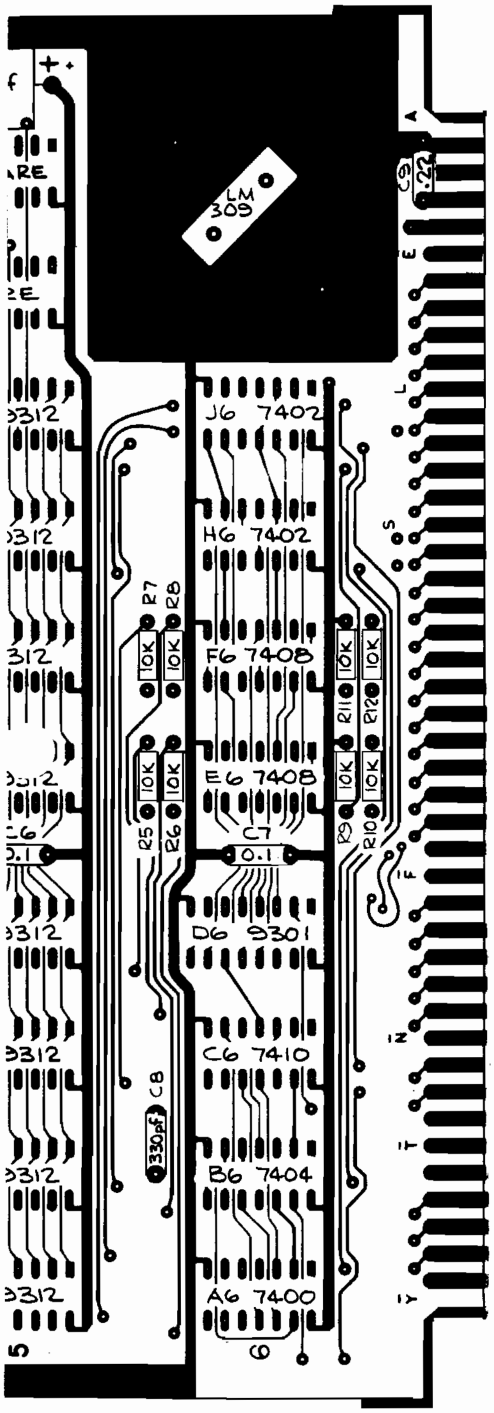
PARTS LIST SPECIFICATION	Page 1 of 1	
Drawn		
Checked	Mech. Eng.	
Proj. Eng	Elec. Eng	REV.

Rev.	Description	Date	Apprv.	Rev.	Description	Date	Apprv.
A		2-3-75					
B	Rev per ECN 1142	2-18-75					
C	[illegible]	[illegible]					
D	[illegible]	[illegible]					
E							

Item	Part Number	Qty.	DESCRIPTION
1	003171	1	Printed Circuit Board
2	37-LM309	1	LM309K Positive 5-Volt Regulator
3	78-06005	1	Heatsink, Wakefield 680-1.0A
4	72-1412S	2	Screw, Mach., Sheetmetal, Pan Hd, Phil,6-32 x 5/
5	75-916S	2	Nut, Machine, Hex, 6-32
6			
7	75-056	2	Lock Washer, Internal Star, #6
8			
9			
10	37-7400	1	7400 Integrated Circuit
11	37-7402	3	7402 " "
12	37-7404	2	7404 " "
13	37-7408	2	7408 " "
14	37-7410	1	7410 " "
15	37-7432	1	7432 " "
16	37-7448	1	7448 " "
17	37-7485	3	7485 " "
18	37-7490	8	7490 " "
19	37-7493	4	7493 " "
20	37-74153	4	74153 " "
21	37-74174	1	74174 " "
22	37-74175	1	74175 " "
23	37-9301	1	9301 " "
24	37-9312	17	9312 " "
25	37-9322	1	9322 " "
26	10-5102	2	Resistor, Carbon, 5%, ¼W, 1K ohm
27	10-5103	10	Resistor, Carbon, 5%, ¼W, 10K ohm
29	28-101331	1	Capacitor, Mica, 330pf, 100V
30	27-101104	6	Capacitor, Ceramic, 0.1µf, 100V
31	29-011	1	Capacitor, Monolythic, .22µf, 12V
32	24-060257	1	Capacitor, Electrolytic, 250µf, 6V


R1 10K
R2 10K
R3 10K
INDY 800 SCORE
ATARI © 74
MADE IN U.S.A.
A003170
PAT NO
3793483
C1
250uf
6V
L2 7485
L3 9312
SPARE
K2 74175
K3 9312
SPARE
SPARE
J2 7485
J3 9312
J4 7490
J5 9312
H1 9322
H2 74174
H3 7493
H4 7490
H5 9312
F1 7448
F2 7485
F3 9312
F4 7490
F5 9312
E1 74153
E2 7404
E3 7493
E4 7490
E5 9312
C2 0.1
C3 0.1
C4 0.1
C5 0.1
C6 0.1
D1 74153
D2 7402
D3 9312
D4 7490
D5 9312
C1 7432
C2 9312
C3 7493
C4 7490
C5 9312
B1 74153
B2 9312
B3 9312
B4 7490
B5 9312
A1 74153
A2 9312
1K R4
A3 7493
A4 7490
A5 9312
1
2
3
4
5
8
7
6
5
D
C
B
A

REVISIONS				
SYM	DESCRIPTION	INITIALS and DATE		
		DRFTG	CHECK	ENGRG
D	REVISED PER ECN 1388	4/28/75		
E	REVISED PER ECN 1431	7/10/75		



NOTE:

1. THIS ASSEMBLY DRAWING TO BE USED WITH 003171 REVISION B P.C.BD.

MODIFICATIONS:

1. CUT TRACE THAT GOES TO "O" PAD IN UPPER LEFT CORNER OF BOARD.
2. JUMPER "O" PAD TO LARGE GROUND TRACE.
3. JUMPER "3" PAD TO LARGE GROUND TRACE.

NEXT ASSY	USED ON
	INDY 800
APPLICATION	

INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:
FRACTIONS ± 1/16 .x ± .1
ANGLES ± 1° .xx ± .03
SURFACE FINISH ✓ .xxx ± .010

MATERIAL: SEE P/L 003170

DRAWN BY / DATE
CHECKED
DESIGN ENGINEER
PROJECT ENGINEER
DOCUMENT CONTROL
APPROVED

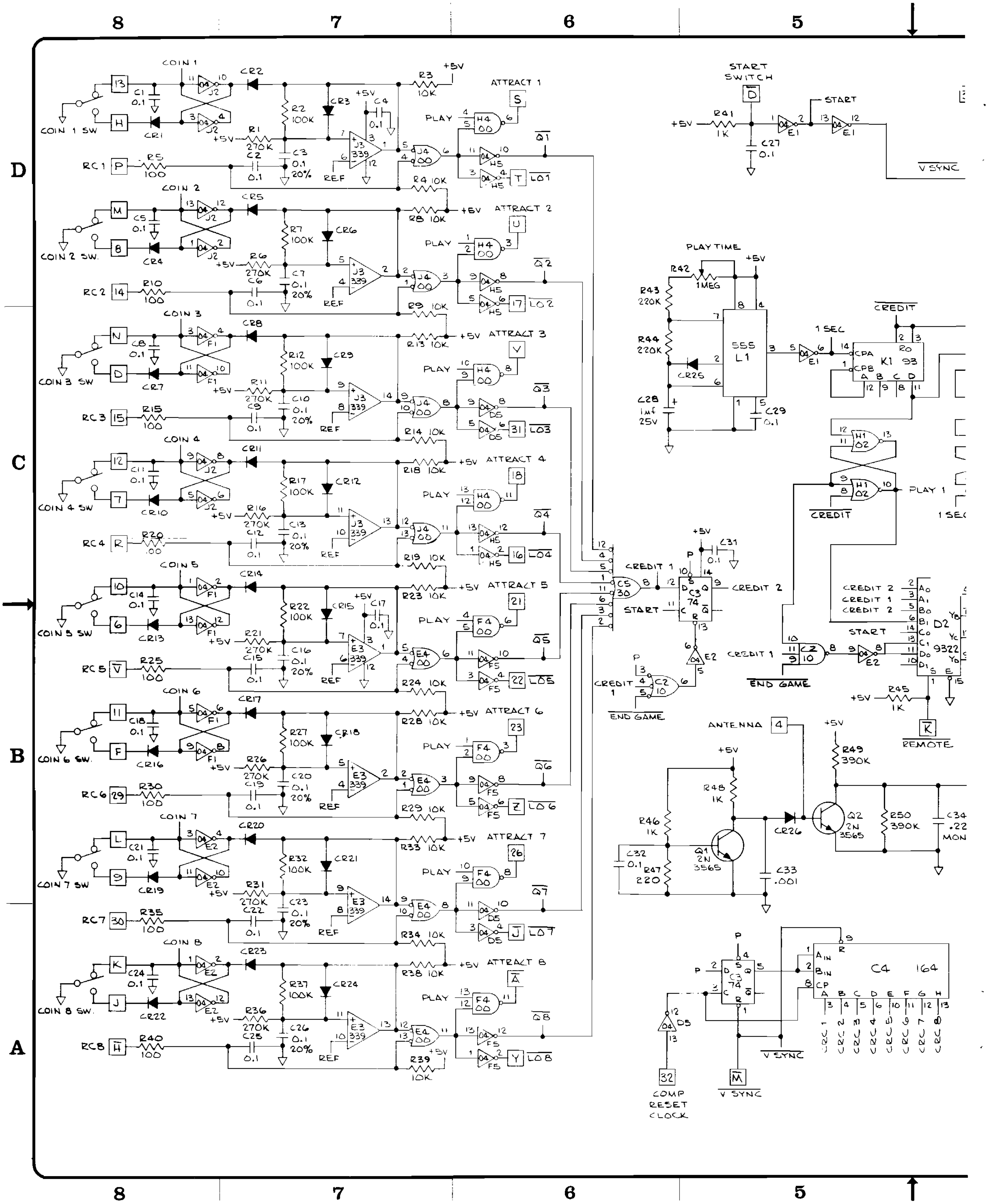
ATARI

ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

TITLE: ASSEMBLY, SCORE BOARD

SIZE: D | DRAWING NO: A003170 | REV: E

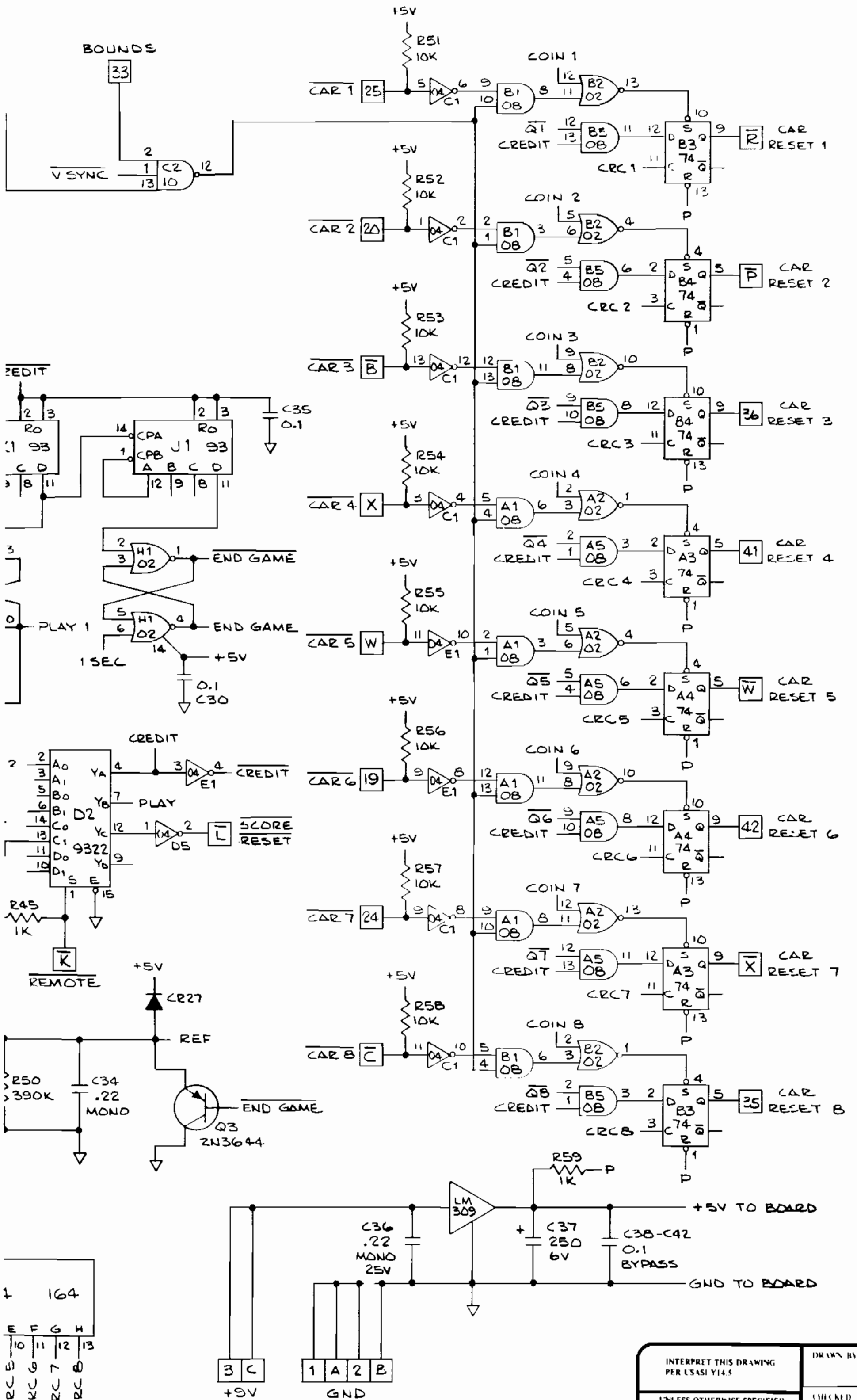
SCALE: 2/1 | SHEET 1 OF 1



8
7
6
5
D
C
B
A
COIN 1
COIN 1 SW
RC1
COIN 2
COIN 2 SW.
RC2
COIN 3
COIN 3 SW
RC3
COIN 4
COIN 4 SW
RC4
COIN 5
COIN 5 SW
RC5
COIN 6
COIN 6 SW.
RC6
COIN 7
COIN 7 SW
RC7
COIN 8
COIN 8 SW.
RC8
ATTRACT 1
ATTRACT 2
ATTRACT 3
ATTRACT 4
ATTRACT 5
ATTRACT 6
ATTRACT 7
ATTRACT 8
PLAY
REF
+5V
R1 270K
R2 100K
R3 10K
R4 10K
R5 100
C1 0.1
C2 0.1
C3 0.1 20%
C4 0.1
J3 339
J4 00
H4 00
H5
E3 339
E4 00
F4 00
F5
D5
E2
F1
J2
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
LO1
LO2
LO3
LO4
LO5
LO6
LO7
LO8
START SWITCH
START
R41 1K
C27 0.1
E1
V SYNC
PLAY TIME
R42 1MEG
R43 220K
R44 220K
555 L1
CR25
C28 1mf 25V
C29 0.1
1 SEC
CREDIT
K1 93
H1 02
PLAY 1
C5 30
CREDIT 1
CREDIT 2
C3 74
C31 0.1
E2
C2 10
END GAME
D2 9322
R45 1K
REMOTE
ANTENNA
R46 1K
R47 220
R48 1K
C32 0.1
Q1 2N 3565
C33 .001
CR26
Q2 2N 3565
R49 390K
R50 390K
C34 .22
MON
C4 164
COMP RESET CLOCK
V SYNC

REVISIONS

SYM	DESCRIPTION	INITIALS and DATE: DRFTG.	CHECK	ENGRG.
B	PRODUCTION RELEASE	2/26/75		
C	REVISED PER ECN 1387	4/28/75		
D	REVISED PER ECN 1434/1437	5/14/75		
E	REVISED PER ECN 1465	6/9/75		



LAST REF. DESIGNATIONS
R59
C42
CR28
Q2

NOTE:
1. ALL DIODES ARE IN914.

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NEXT ASSY	USED ON
A003184	RT 8 PLAYER

APPLICATION

INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
FRACTIONS = ±1/16 .X = ±.1
ANGLES = ±1° .XX = ± .03
SURFACE FINISH ✓ .XXX = ± .010

MATERIAL

DRAWN BY — DATE
CHECKED
DESIGN ENGINEER
PROJECT ENGINEER
DOCUMENT CONTROL
APPROVED

ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

TITLE SCHEMATIC, COIN CONTROL BOARD

SIZE D — DRAWING NO. 003184 — REV. E

SCALE — SHEET 1

ASSEMBLY TITLE	RT8 COIN CONTROL BOARD	P/L 003184

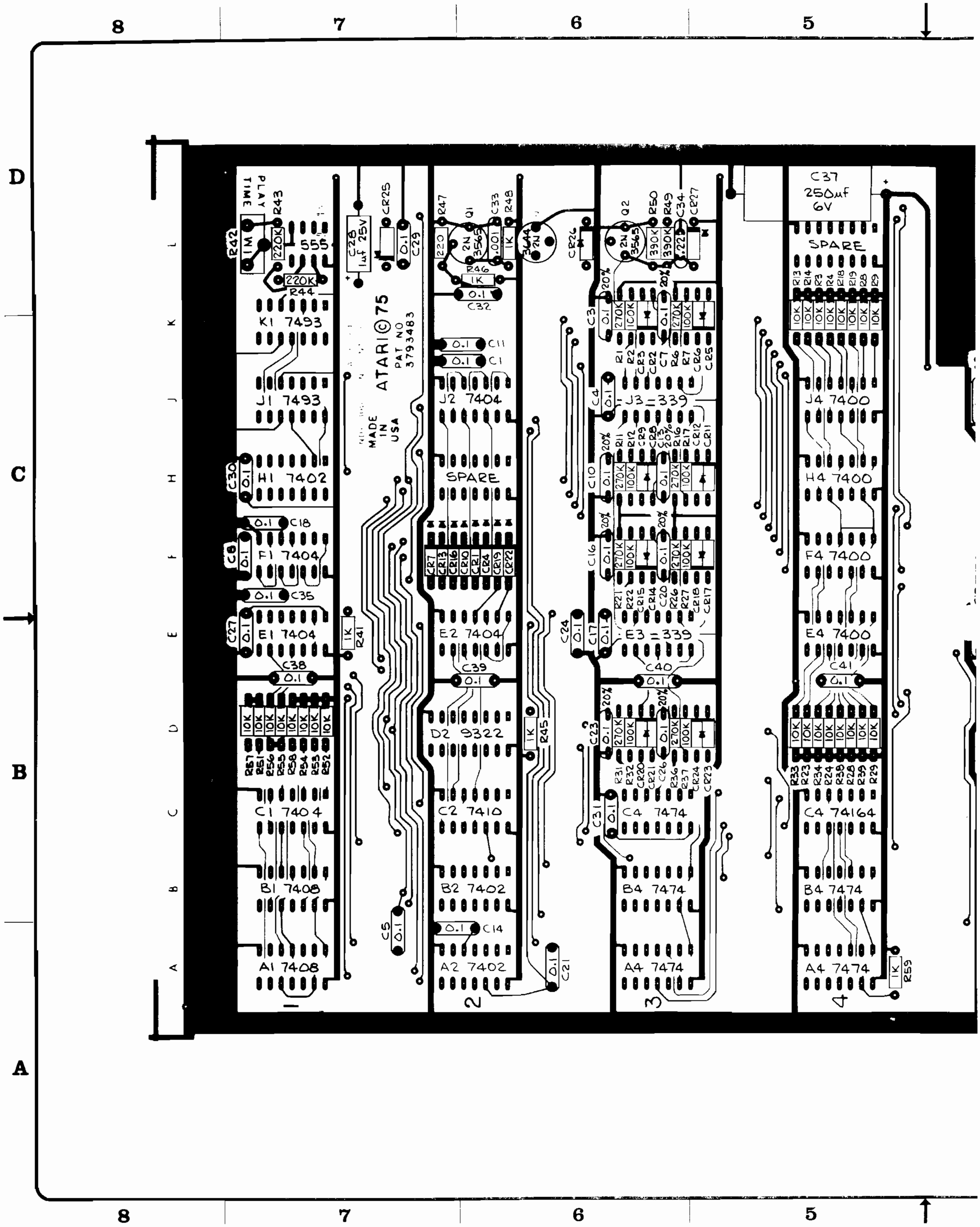
PARTS LIST SPECIFICATION Page 1 of 1

Drawn	
Checked	Mech. Eng.
Proj. Eng.	Elec. Eng

REV.

Rev.	Description	Date	Apprv.	Rev.	Description	Date	Apprv.
A		2-4-75	[illegible]				
B	Rev per ECN 1161	2-26-75	[illegible]				
C	Rev per ECN [illegible]	[illegible]	[illegible]				
D	Rev per ECN [illegible]	[illegible]	[illegible]				
E	[illegible]	[illegible]	[illegible]				

Item	Part Number	Qty.	DESCRIPTION
1	003185	1	Printed Circuit Board
2	37-LM309	1	LM309K Positive 5-Volt Regulator
3	78-06004	1	Heatsink, WakeField 680-.75A
4	72-1412S	2	Screw, Machine, Pan Hd., Phil., 6-32 x 5/8"
5	75-916S	2	Nut, Machine, Hex, 6-32
6			
7	75-056	2	Lock Washer, Internal Star, #6
8	37-7400	4	7400 I.C.
9	37-7402	3	7402 "
10	37-7404	8	7404 "
11	37-7408	4	7408 "
12	37-7410	1	7410 "
13	37-7430	1	7430 "
14	37-7474	5	7474 "
15	37-7493	2	7493 "
16	37-74164	1	74164 "
17	37-9322	1	9322 "
18	37-555	1	555 Timer I.C.
19	37-LM339	2	LM339 Quad Comparator
20	34-2N3565	2	Transistor, NPN, Type 2N3565
21	31-1N914	27	Diode, Type 1N914
22			
23	10-5101	8	Resistor, Carbon, 5%, ¼W, 100 ohm
24	10-5102	5	" " " " 1K "
25	10-5103	24	" " " " 10K "
26			
27	10-5104	8	" " " " 100K "
28	10-5224	3	" " " " 220K "
29	10-5221	1	" " " " 220 "
30	10-5274	8	" " " " 270K "
31	19-311105	1	Trimpot, 1M ohm, P.C. Vert. Mount
32	27-101102	1	Capacitor, Ceramic, .001 uf, 100V
33	27-101104	29	" " 0.1 uf, 100V
34	29-011	2	Capacitor, Monolythic, .22 uf, 12V, Rad.
35	24-250105	1	Capacitor Electrolytic, 1 uf, 25V
36	24-060257	1	" " 250 uf, 6V
37	27-120104	8	Capacitor, Ceramic, 0.1 uf, 12V, 20%
38	33-2N3644	1	Transistor, PNP, 2N3644
39	10-5394	2	Resistor, Carbon, 5%, ¼W, 390K ohm



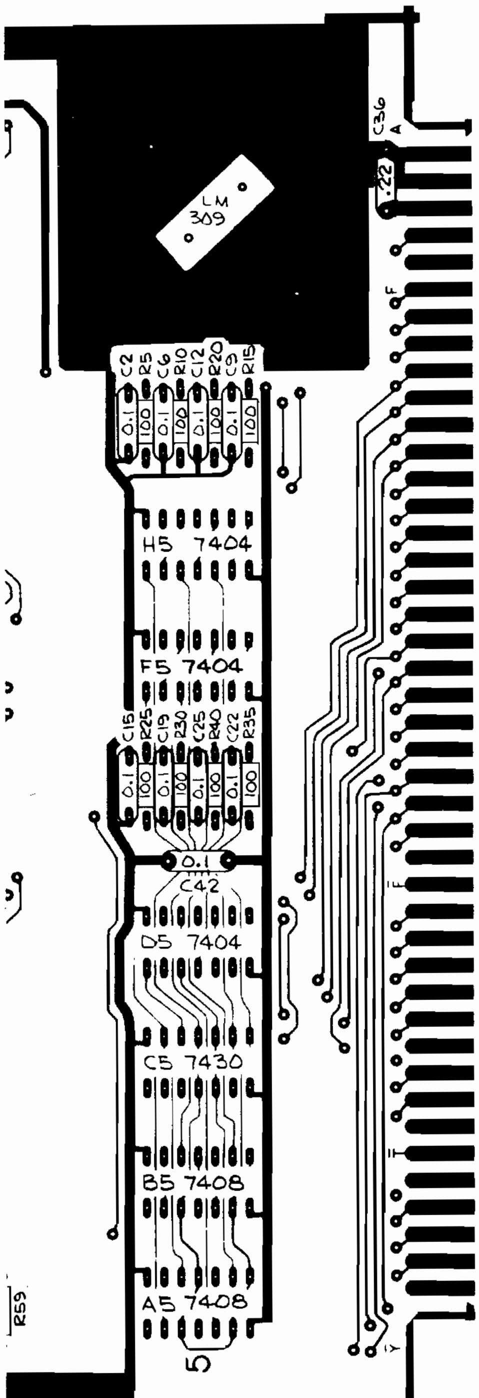
8
7
6
5
D
C
B
A
ATARI © 75
PAT NO 3793483
MADE IN USA
PLAY TIME
555
K1 7493
J1 7493
H1 7402
F1 7404
E1 7404
C1 7404
B1 7408
A1 7408
J2 7404
SPARE
E2 7404
D2 9322
C2 7410
B2 7402
A2 7402
J3 339
E3 339
C4 7474
B4 7474
A4 7474
C37 250 µf 6V
SPARE
J4 7400
H4 7400
F4 7400
E4 7400
C4 74164
B4 7474
A4 7474
C28 1µf 25V
1
2
3
4

4 3 2 1

REVISIONS

SYM	DESCRIPTION	INITIALS and DATE DRFTG	CHECK	ENGRG
C	REVISED PER ECN 1387	4/29/75		
C	DOC. CHANGE PER ECN 1423 ADDED R47 TO DRAWING	5/12/75		
D	REVISED PER ECN 1434/1437	5/14/75		
E	REVISED PER ECN 1465	6/9/75		

D



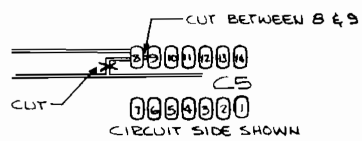
C

NOTES:

1. THIS ASSEMBLY DRAWING TO BE USED WITH 003185 REVISION B P.C. BOARD.
2. ALL DIODES ARE IN914.

MODIFICATIONS: (TO BE DONE TO 003185 REV "B" P.C. BOARD)

1. ON CIRCUIT SIDE, CUT TRACE BETWEEN PINS 8 AND 9 OF C5, AND CUT L-SHAPED TRACE GOING TO PIN 8 OF C5, AS SHOWN:



B

A

NEXT ASSY	USED ON
	INDY 800
APPLICATION	

INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON

FRACTIONS = ±1/16 .x = ±.1
ANGLES = ±1° .xx = ± .03
SURFACE FINISH ✓ .xxx = ± .010

MATERIAL: SEE P/L 003184

DRAWN BY | DATE

CHECKED

DESIGN ENGINEER

PROJECT ENGINEER

DOCUMENT CONTROL

APPROVED

ATARI

ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

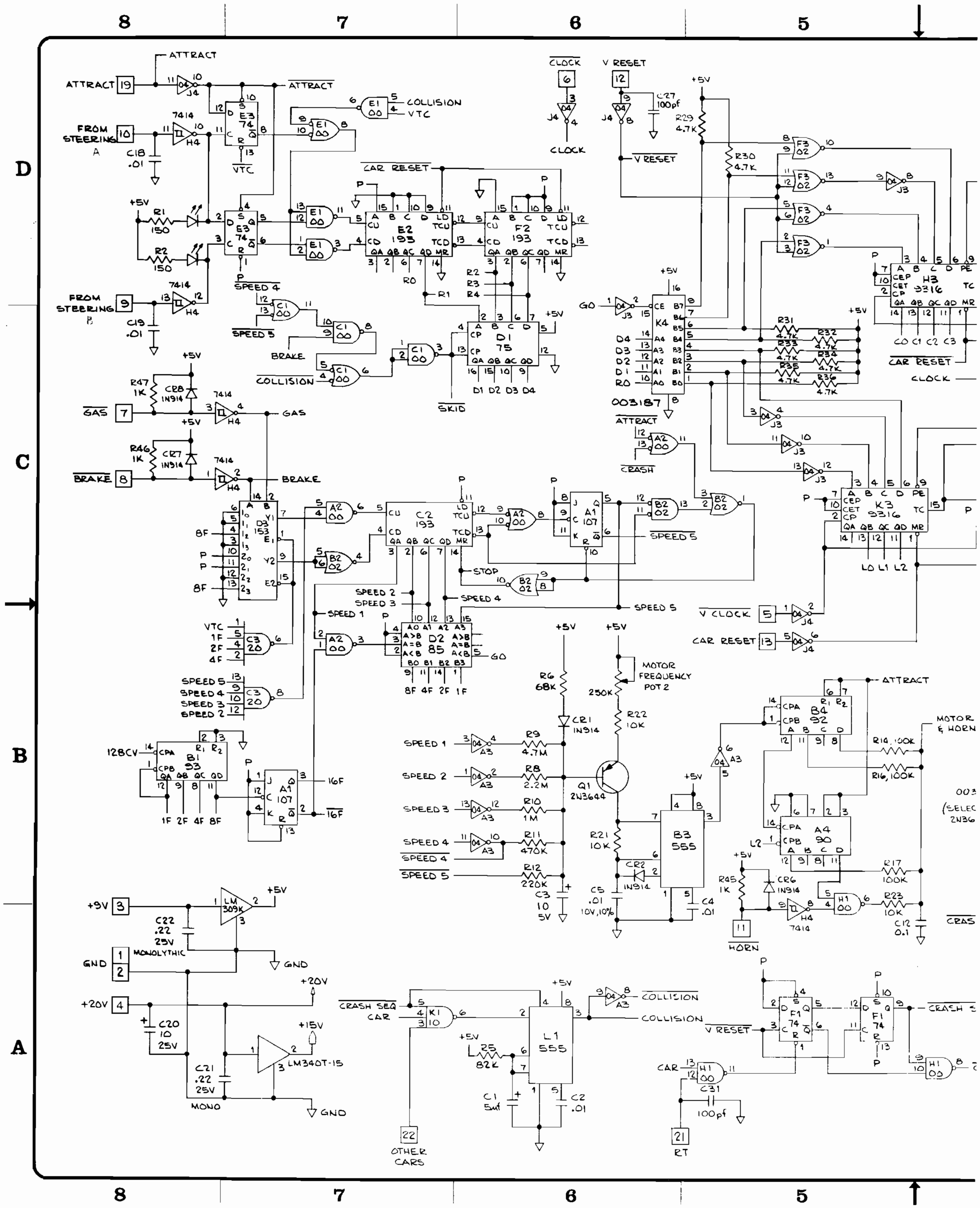
TITLE: ASSEMBLY, COIN CONTROL BOARD

SIZE	DRAWING NO.	REV
D	A003184	E

SCALE 2/1 SHEET 1 OF 1

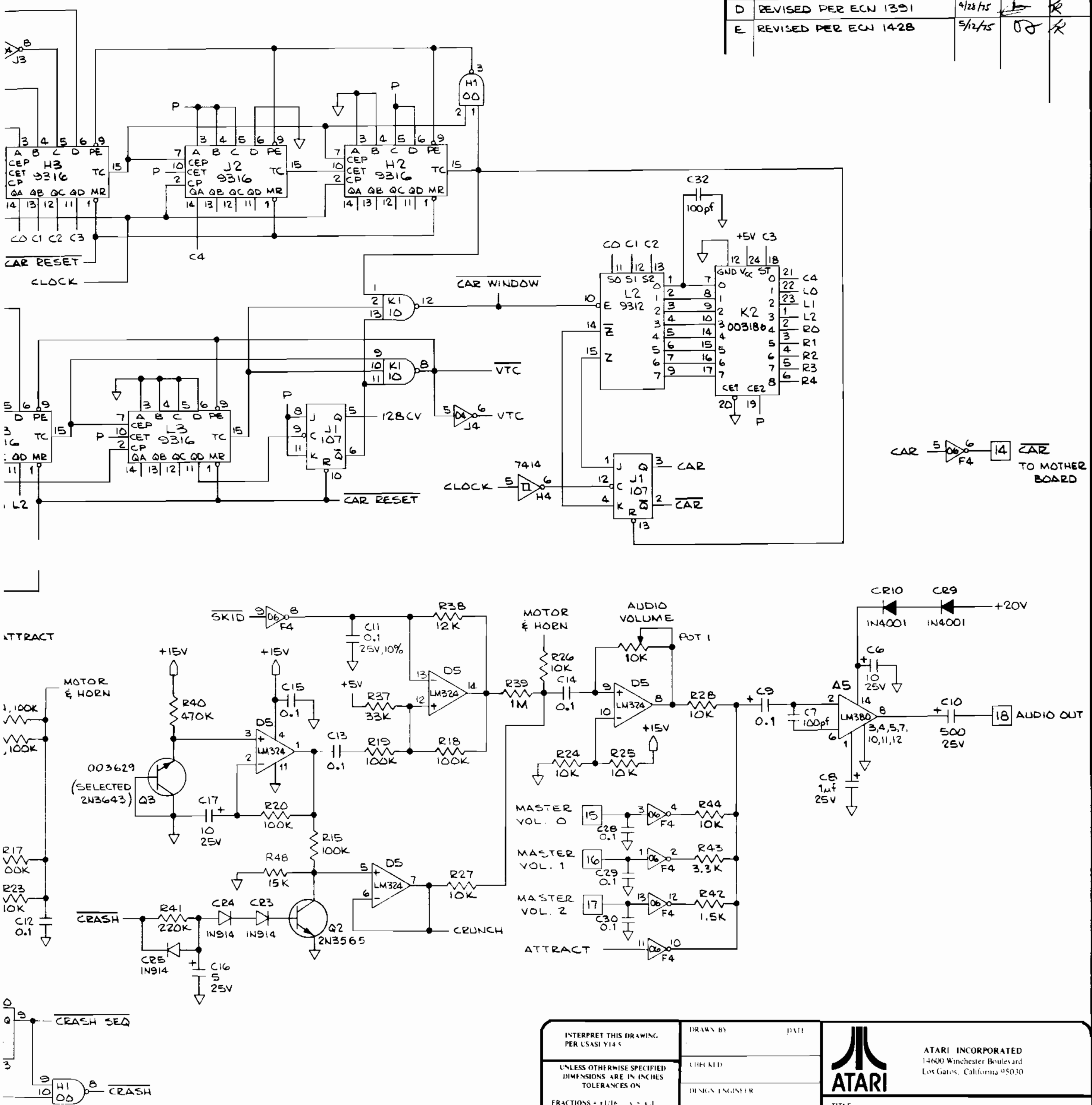
DRAWING NO. | SHEET | REV

4 3 2 1



8
7
6
5
D
C
B
A
ATTRACT
FROM STEERING A
FROM STEERING B
GAS
BRAKE
COLLISION
VTC
CAR RESET
SPEED 4
SPEED 5
SKID
CLOCK
V RESET
GO
003187
CRASH
STOP
SPEED 1
SPEED 2
SPEED 3
V CLOCK
MOTOR FREQUENCY POT 2
MOTOR & HORN
HORN
+9V
GND
+20V
MONOLYTHIC
MONO
LM 309K
LM340T-15
CRASH SEQ
CAR
OTHER CARS
RT
2N3644
555
9316
193

SYM	DESCRIPTION	DRFTG	CHECK	ENGRG
A	PRODUCTION RELEASE	2/18		
B	REVISED PER ECN 1166	2/27/75		
C	REVISED PER ECN 1248, 1269	3/25/75		
D	REVISED PER ECN 1391	4/28/75		
E	REVISED PER ECN 1428	5/12/75		



INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON

FRACTIONS ± 1/16 ANGLES ± 1° SURFACE FINISH ✓

MATERIAL

DRAWN BY | DATE

CHECKED

DESIGN ENGINEER

PROJECT ENGINEER

DOCUMENT CONTROL

NEXT ASSY | USED ON

APPLICATION

ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

TITLE SCHEMATIC CAR BOARD

SIZE D | DRAWING NO. 003000 | REV E

SCALE | SHEET 1 of 1

ATARI Innovative leisure

ASSEMBLY TITLE	RT8 CAR BOARD	P/L 003000

PARTS LIST SPECIFICATION Page 1 of 2

Drawn	
Checked	Mech. Eng.
Proj. Eng.	Elec. Eng

REV. E

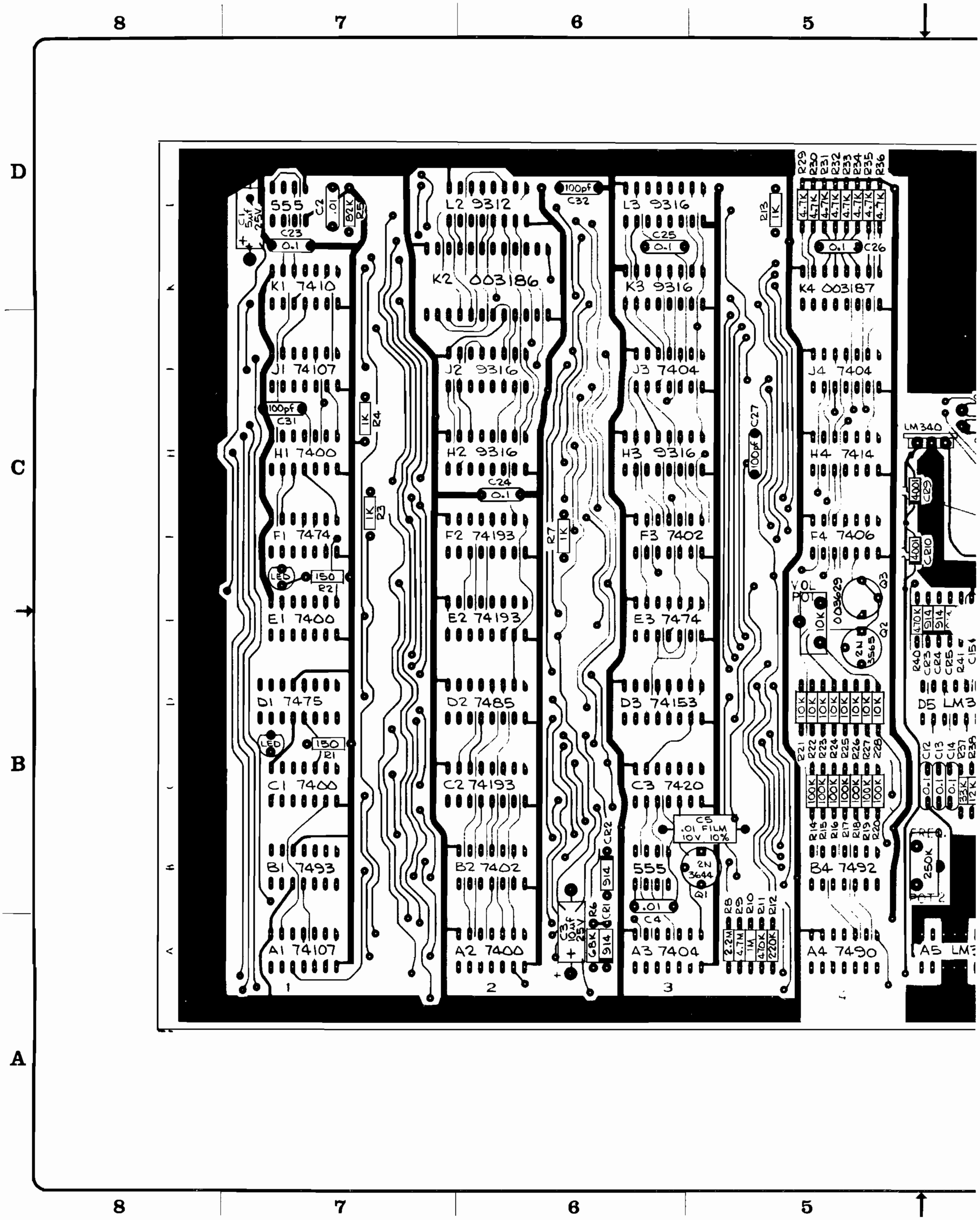
Rev.	Description	Date	Apprv.	Rev.	Description	Date	Apprv.
A		2-3-75					

Item	Part Number	Qty.	DESCRIPTION
1	002999	1	Printed Circuit Board
2	78-06004	1	Heatsink, Wakefield #680-.75A
3	37-LM309	1	LM309K Positive 5-Volt Regulator
4	37-LM340T-15	1	LM340T-15 Positive 15-Volt Regulator
5	37-7400	4	7400 Integrated Circuit
6	37-7402	2	7402 " "
7	37-7404	3	7404 " "
8	37-7406	1	7406 " "
9	37-7410	1	7410 " "
10	37-7414	1	7414 " "
11	37-7420	1	7420 " "
12	37-7474	2	7474 " "
13	37-7475	1	7475 " "
14	37-7485	1	7485 " "
15	37-7490	1	7490 " "
16	37-7492	1	7492 " "
17	37-7493	1	7493 " "
18	37-74107	2	74107 " "
19	37-74153	1	74153 " "
20	37-74193	3	74193 " "
21	003186	1	ROM, RT8 Car Video, 512 x 8, 4096 Bit
22	003187	1	P-ROM, RT8 Motion Code, 32 x 8, 256 Bit
23	37-9312	1	9312 Integrated Circuit
24	37-9316	5	9316 " "
25	37-555	2	555 Timer Integrated Circuit
26	37-LM324	1	LM324 Quad Op Amp
27	37-LM380	1	LM380 Audio Power Amp
28	34-2N3565	1	Transistor, NPN, Type 2N3565
29	003629	1	Transistor, Noise Source, 2N3643
30	35-2N3644	1	Transistor, PNP, Type 2N3644
31	31-1N914	8	Diode, Type 1N914
32	38-MV5013	2	Light Emitting Diode, Visible, Red
33	79-42424	1	24 pin Solder Socket
34	79-42116	1	16 pin Solder Socket
35	19-311103	1	10K ohm Trimpot
36	10-5151	2	Resistor, Carbon, 5%, ¼W, 150 ohm
37	10-5102	7	" " " " 1K ohm
38	10-5152	1	" " " " 1.5K ohm
39	10-5332	1	" " " " 3.3K ohm
40	10-5472	8	" " " " 4.7K ohm

ASSEMBLY TITLE RT8 CAR BOARD **P/L** 003000

PARTS LIST SPECIFICATION REV E

Item	Part Number	Qty.	DESCRIPTION
41	10-5103	9	Resistor, Carbon, 5%, ¼W, 10K ohm
42	10-5123	1	" " " " 12K ohm
43	10-5153	1	" " " " 15K ohm
44	10-5333	1	" " " " 33K ohm
45	10-5683	1	" " " " 68K ohm
46	10-5823	1	" " " " 82K ohm
47	10-5104	7	" " " " 100K ohm
48	10-5224	2	" " " " 220K ohm
49	10-5474	2	" " " " 470K ohm
50	10-5105	2	" " " " 1M ohm
51	10-5225	1	" " " " 2.2M ohm
52	10-5475	1	" " " " 4.7M ohm
53	19-311254	1	250K ohm Trimpot
54	28-101101	4	Capacitor, Mica, 100pf, 100V
55	27-101103	4	" Ceramic, .01uf, 100V
56	21-250103	1	" Film (Mylar), .01uf, 25V
57	27-101104	12	" Ceramic, 0.1uf, 100V
58	21-250104	1	" Film (Mylar), 0.1uf, 25V
59	29-011	2	" Monolythic, 0.22uf, 12V
60	24-250105	1	" Electrolytic, 1uf, 25V
61	24-250505	2	" Electrolytic, 5uf, 25V
62	24-250106	4	" Electrolytic, 10uf, 25V
63	24-250507	1	" Electrolytic, 500uf, 25V
64	72-1412S	2	Screw, Mach, Sht Mtl, Pn Hd, Phil, 6-32 x 5/8"
65	75-916S	2	Nut, Machine, Hex, 6-32
66			
67	75-056	2	Lock Washer, Internal Star, #6
68	31-IN4001	2	DIODE, IN4001

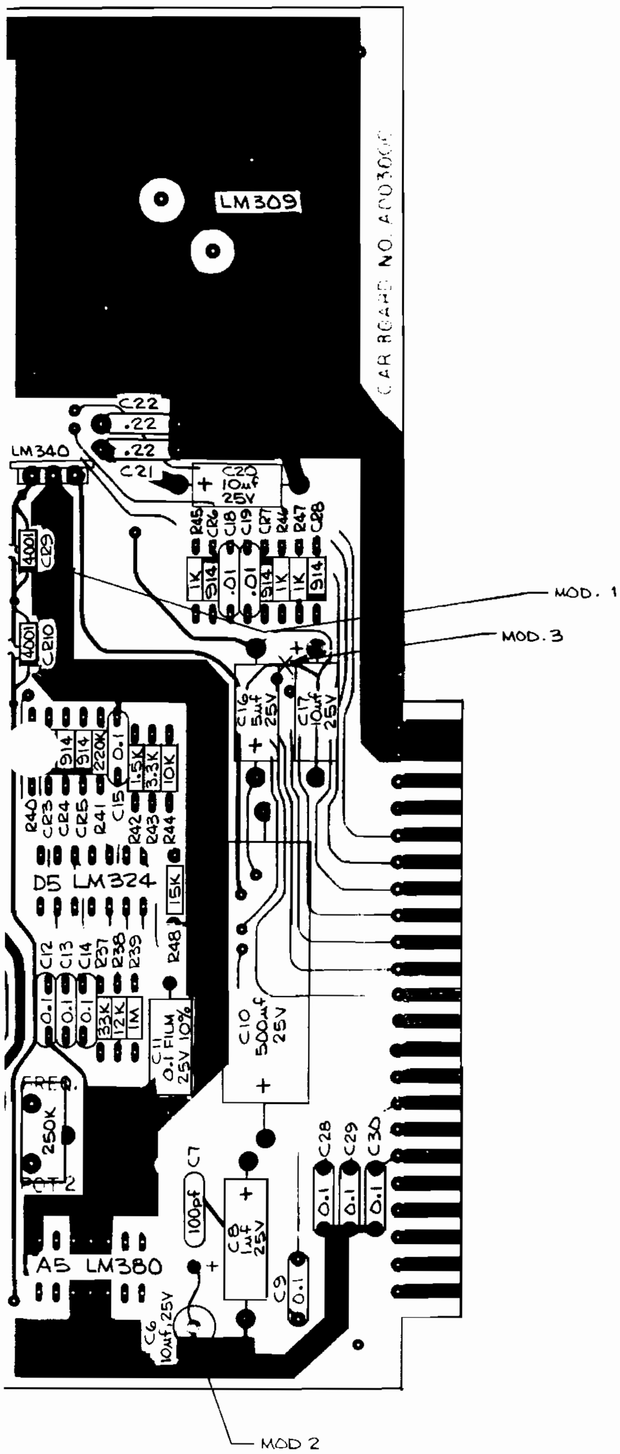


8
7
6
5
D
C
B
A
555
C2
.01
82K
R5
C1 5µf 25V
C23
0.1
K1 7410
J1 74107
100pf
C31
1K
R4
H1 7400
1K
R3
F1 7474
LED
150
R2
E1 7400
D1 7475
LED
150
R1
C1 7400
B1 7493
A1 74107
1
L2 9312
100pf
C32
K2 003186
J2 9316
H2 9316
C24
0.1
F2 74193
R7
1K
E2 74193
D2 7485
C2 74193
B2 7402
CR2
914
C3 10µf 25V
R6
CR1
68K
914
A2 7400
2
L3 9316
R13
1K
C25
0.1
K3 9316
J3 7404
C27
100pf
H3 9316
F3 7402
E3 7474
D3 74153
C3 7420
C5
.01 FILM
10V 10%
555
2N 3644
Q1
.01
C4
R8
R9
R10
R11
R12
2.2M
4.7M
1M
470K
220K
A3 7404
3
R29
R30
R31
R32
R33
R34
R35
R36
4.7K
C26
0.1
K4 003187
J4 7404
LM340
H4 7414
4001
CR9
F4 7406
4001
CR10
VOL POT
10K
003629
Q3
2N 3565
Q2
470K
914
914
R40
CR3
CR4
CR5
R41
10K
R21
R22
R23
R24
R25
R26
R27
R28
D5 LM3
100K
R14
R15
R16
R17
R18
R19
R20
C12
C13
C14
R37
R38
0.1
33K
12K
FREQ.
250K
POT 2
B4 7492
A4 7490
A5 LM3

4 3 2 1

REVISIONS

SYM	DESCRIPTION	DRFTG	CHECK	ENGRG
D	REVISED PER ECN 1391	4/24/75		
E	REVISED PER ECN 1428	5/12/75		



NOTES:

1. LED'S TO BE MOUNTED POINTING TOWARDS BACK OF BOARD AND LAYING DOWN.
2. THIS ASSEMBLY TO BE USED WITH 002999 REVISION "B" P.C. BOARD.

MODIFICATIONS: (TO REVISION "B" AND REVISION "C" 002999 BOARDS).

1. INSTALL TWO IN4001 DIODES IN SERIES AS SHOWN, CUTTING TRACE UNDERNEATH EACH DIODE.
2. INSTALL 10uf 25V CAPACITOR AS SHOWN, STANDING UP.

MODIFICATION: (TO REVISION "B" 002999 BOARDS ONLY)

3. CUT TRACE AS INDICATED. JUMPER +(POSITIVE) END OF C17 (10uf/25V) CAPACITOR TO D5 PIN 2 (LM324).

D C B A

NEXT ASSY	USED ON
	INDY 800
APPLICATION	

INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: FRACTIONS ±1/16, ANGLES ±1°, SURFACE FINISH ✓, .XX ± .01, .XXX ± .010

MATERIAL: SEE P/L 003000

DRAWN BY / DATE — CHECKED — DESIGN ENGINEER — PROJECT ENGINEER — DOCUMENT CONTROL — APPROVED

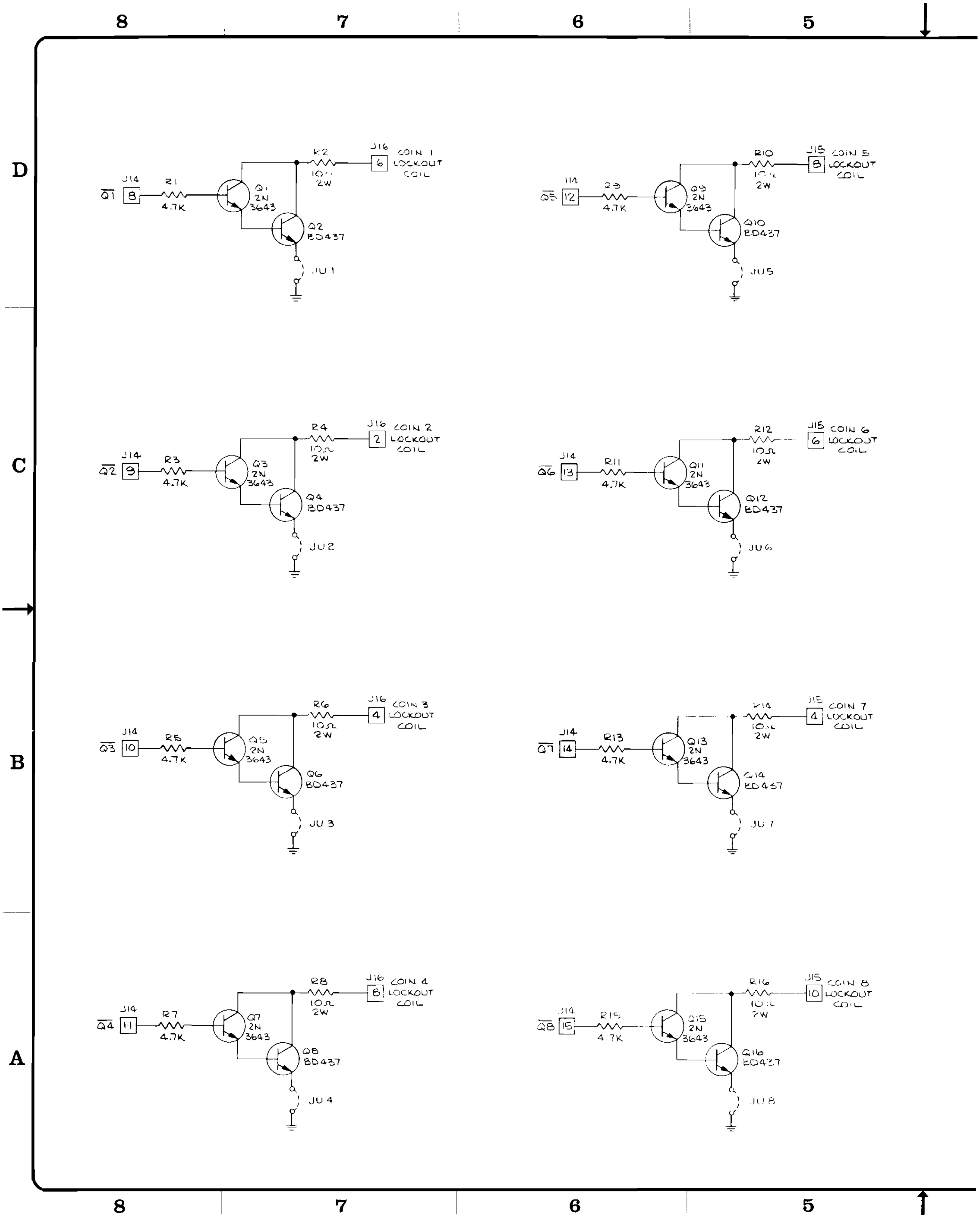
ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

TITLE: ASSEMBLY, CAR BOARD

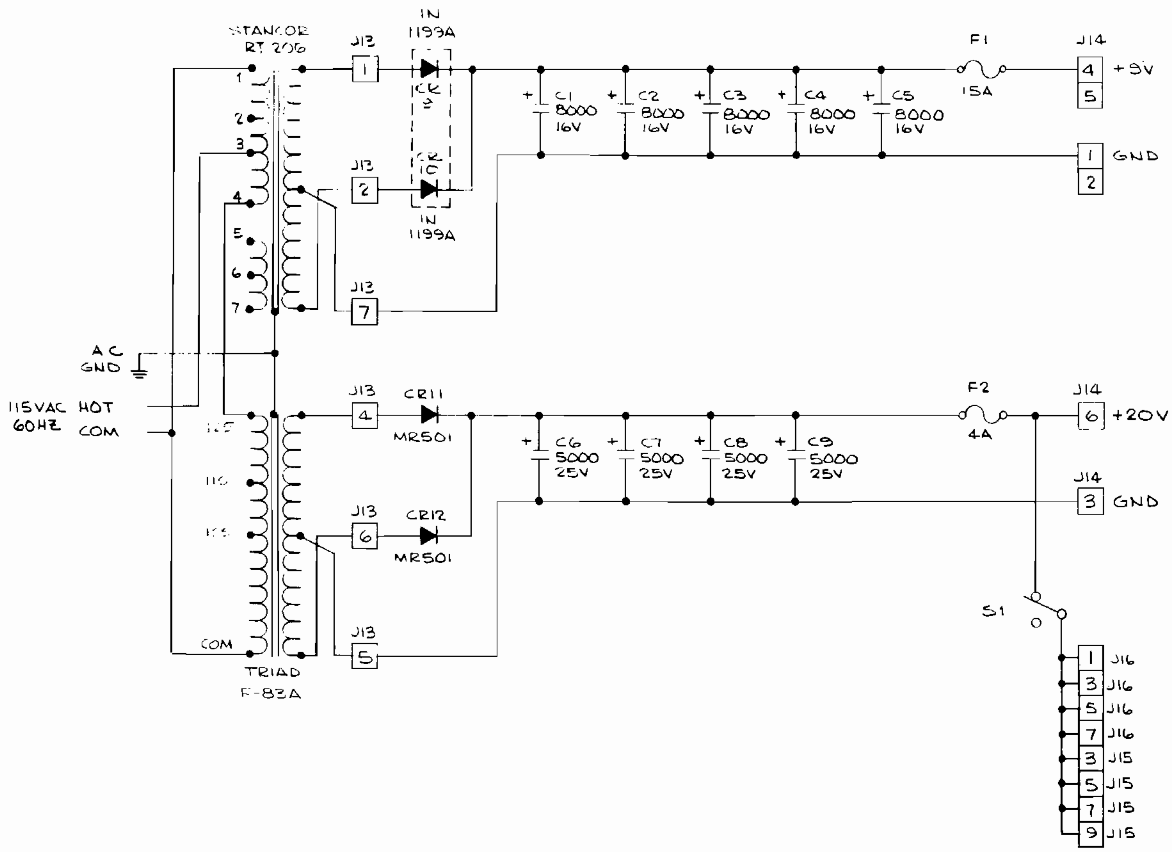
SIZE	DRAWING NO.	REV
D	A003000	E

SCALE 2/1 SHEET 1 OF 1

4 3 2 1


8
7
6
5
D
C
B
A
J14
Q1 8
R1
4.7K
Q1
2N
3643
R2
2W
J16
6
COIN 1
LOCKOUT
COIL
Q2
BD437
JU1
J14
Q5 12
R9
4.7K
Q9
2N
3643
R10
2W
J15
8
COIN 5
LOCKOUT
COIL
Q10
BD437
JU5
J14
Q2 9
R3
4.7K
Q3
2N
3643
R4
10Ω
2W
J16
2
COIN 2
LOCKOUT
COIL
Q4
BD437
JU2
J14
Q6 13
R11
4.7K
Q11
2N
3643
R12
10Ω
2W
J15
6
COIN 6
LOCKOUT
COIL
Q12
BD437
JU6
J14
Q3 10
R5
4.7K
Q5
2N
3643
R6
10Ω
2W
J16
4
COIN 3
LOCKOUT
COIL
Q6
BD437
JU3
J14
Q7 14
R13
4.7K
Q13
2N
3643
R14
10Ω
2W
J15
4
COIN 7
LOCKOUT
COIL
Q14
BD437
JU7
J14
Q4 11
R7
4.7K
Q7
2N
3643
R8
10Ω
2W
J16
8
COIN 4
LOCKOUT
COIL
Q8
BD437
JU4
J14
Q8 15
R15
4.7K
Q15
2N
3643
R16
2W
J15
10
COIN 8
LOCKOUT
COIL
Q16
BD437
JU8

REVISIONS				
SYM	DESCRIPTION	INITIALS and DATE		
		DRFTG.	CHECK	ENGRG.
D	REVISED PER ECN 1289	4/28		
E	REVISED PER ECN 1406 & 1424	5/12/75		
F	REVISED PER ECN 1458, 1466	5/30/75		



A003191	INDY 800
NEXT ASSY	USED ON
APPLICATION	

INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS = ±1/16 .x = ±.1
ANGLES = ±1° .xx = ±.03
SURFACE FINISH ✓ .xxx = ±.010

MATERIAL

DRAWN BY — DATE
CHECKED
DESIGN ENGINEER
PROJECT ENGINEER
DOCUMENT CONTROL
APPROVED

ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

TITLE SCHEMATIC, POWER SUPPLY BOARD

SIZE D | DRAWING NO. 003191 | REV. F
SCALE — | SHEET 1 of 1

ATARI Innovative leisure

ASSEMBLY TITLE	INDY 800 POWER SUPPLY P.C.B.	P/L 003191

PARTS LIST SPECIFICATION		Page 1 of 1
Drawn		
Checked	Mech. Eng.	
Proj. Eng.	Elec. Eng	REV. F

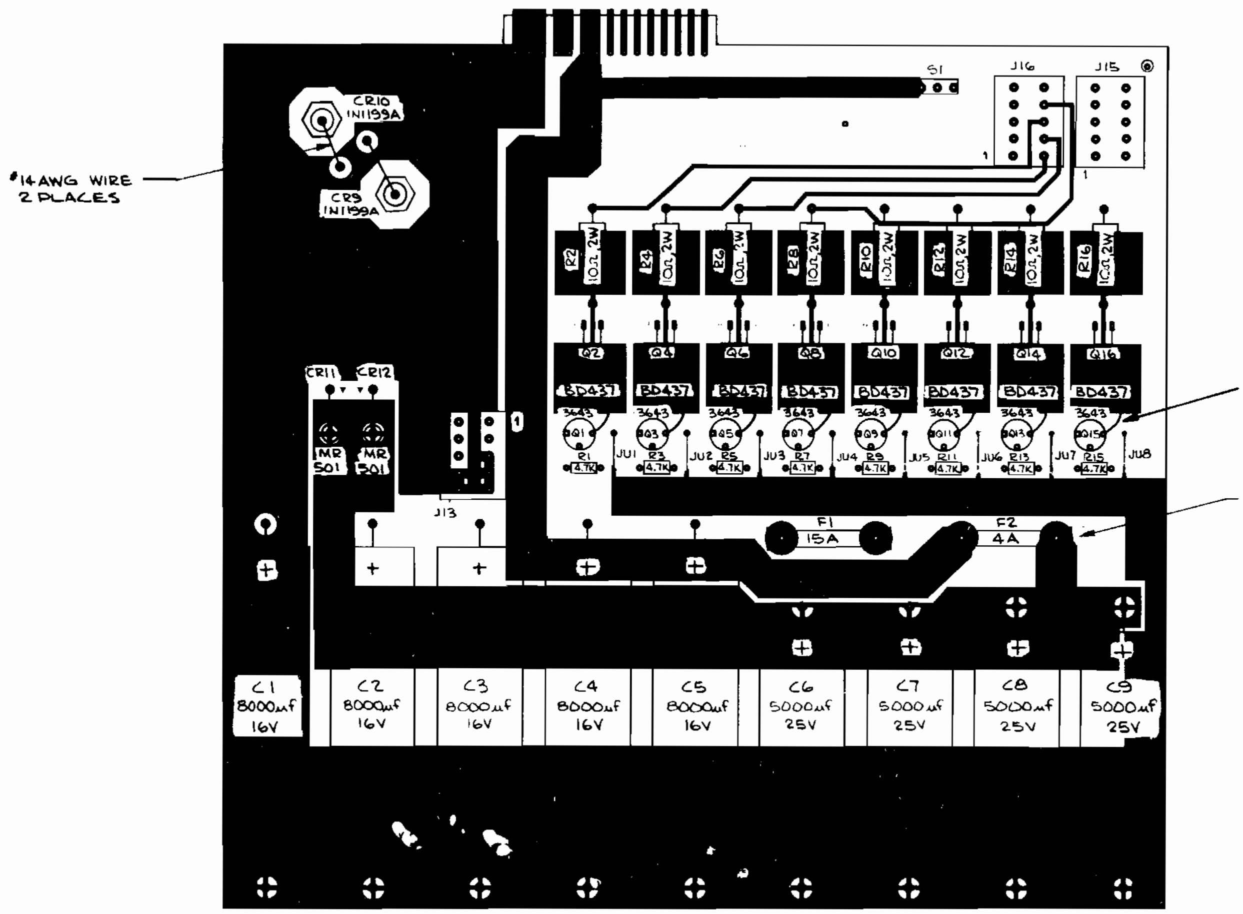
Rev.	Description	Date	Apprv.	Rev.	Description	Date	Apprv.
D	[illegible]	[illegible]					
[illegible]	[illegible]						
F	Rev per ECN 1458	5/30/75					

Item	Part Number	Qty.	DESCRIPTION
1	003192	1	P.C.B., Indy 800 Power Supply
2	24-160808	5	Capacitor, Electrolytic, 8000uf, 16V, 85 C
3	24-250508	4	Capacitor, Electrolytic, 5000uf, 25V, 85 C
4	31-MR501	2	Diode, Type MR501 (3A)
5	31-1N1199A	2	Diode, Type 1N1199A (12A)
6	78-06006	1	Heatsink, Wakefield 680-1.25
7	61-011C	1	SPDT Toggle Switch, C & K 7101
8	10-5472	8	Resistor, Carbon, 5%, ¼W, 4.7K ohm
9	13-0100	8	Resistor, Carbon, 10%, 2W, 10 ohm
10	34-2N3643	8	NPN Transistor, Type 2N3643
11			
12	34-BD437	8	NPN Power Transistor, Type BD 437 (SGS-ATES)
13	72-1405C	12	Machine Screw, 4-40 x 5/16, Stainless
14	75-914S	12	Hex Nut, 4-40
15	75-054	12	Lock Washer, Internal Star, #4
16	75-014S	12	Flat Washer, #4
17	79-58005	3	Connector, 10 pin, P.C. Mount, Amp #1-380991
18	79-3202	4	Fuse Clip, 3AG, Beryllium Copper, Silver Plate, Little Fuse #121001
19	46-2031503	1	Fuse, 3AG, 15A, 32V, Fast-Blow
20	46-203401	1	Fuse, 3AG, 4A, 125V, Fast-Blow
21	------	8	22 AWG Wire Jumper

8 7 6 5

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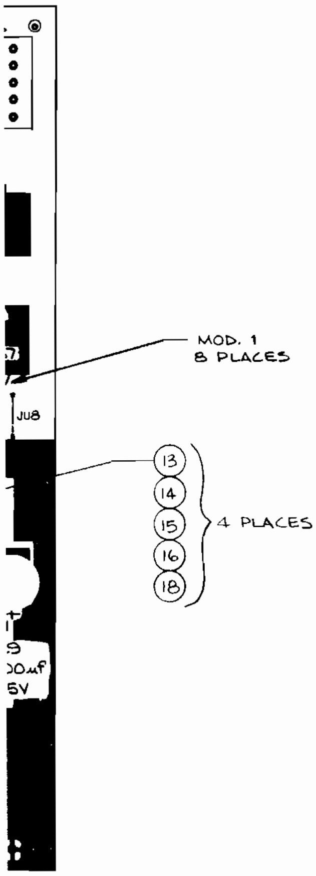
8 7 6 5

4 | 3 | 2 | 1

REVISIONS

SYM	DESCRIPTION	DRFTG.	CHECK	ENGRG.
D	REVISED PER ECN 1389	4/15		
E	REVISED PER ECN 1406 & 1424	5/12/75		
F	REVISED PER ECN 1458, 1466	5/30/75		

D



NOTE:

1. MOUNT CR11 AND CR12 (MR501) VERTICALLY, WITH CATHODE SIDE DOWN.
2. REMOVE PINS 3 AND 8 FROM J13 BEFORE MOUNTING.
3. REMOVE PINS 1 AND 2 FROM J15 BEFORE MOUNTING.
4. REMOVE PINS 9 AND 10 FROM J16 BEFORE MOUNTING.

C

MODIFICATIONS: (TO 003192 REVISION "D" BOARDS ONLY)

1. SOLDER THE COLLECTOR LEADS OF THE EIGHT 2N3643 TRANSISTORS TO THE LARGE COPPER AREA AS SHOWN.

B

A

NEXT ASSY	USED ON
	INDY 800
APPLICATION	

INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:
FRACTIONS ± 1/16 .X ± .1
ANGLES ± 1° .XX ± .01
SURFACE FINISH ✓ .XXX ± .010

MATERIAL: SEE P/L 003191

DRAWN BY | DATE
CHECKED
DESIGN ENGINEER
PROJECT ENGINEER
DOCUMENT CONTROL
APPROVED

ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

TITLE: ASSEMBLY, POWER SUPPLY BOARD

SIZE: D | DRAWING NO.: A003191 | REV: F
SCALE: 1/1 | SHEET 1 OF 1

4 | 3 | 2 | 1

ATARI Innovative leisure

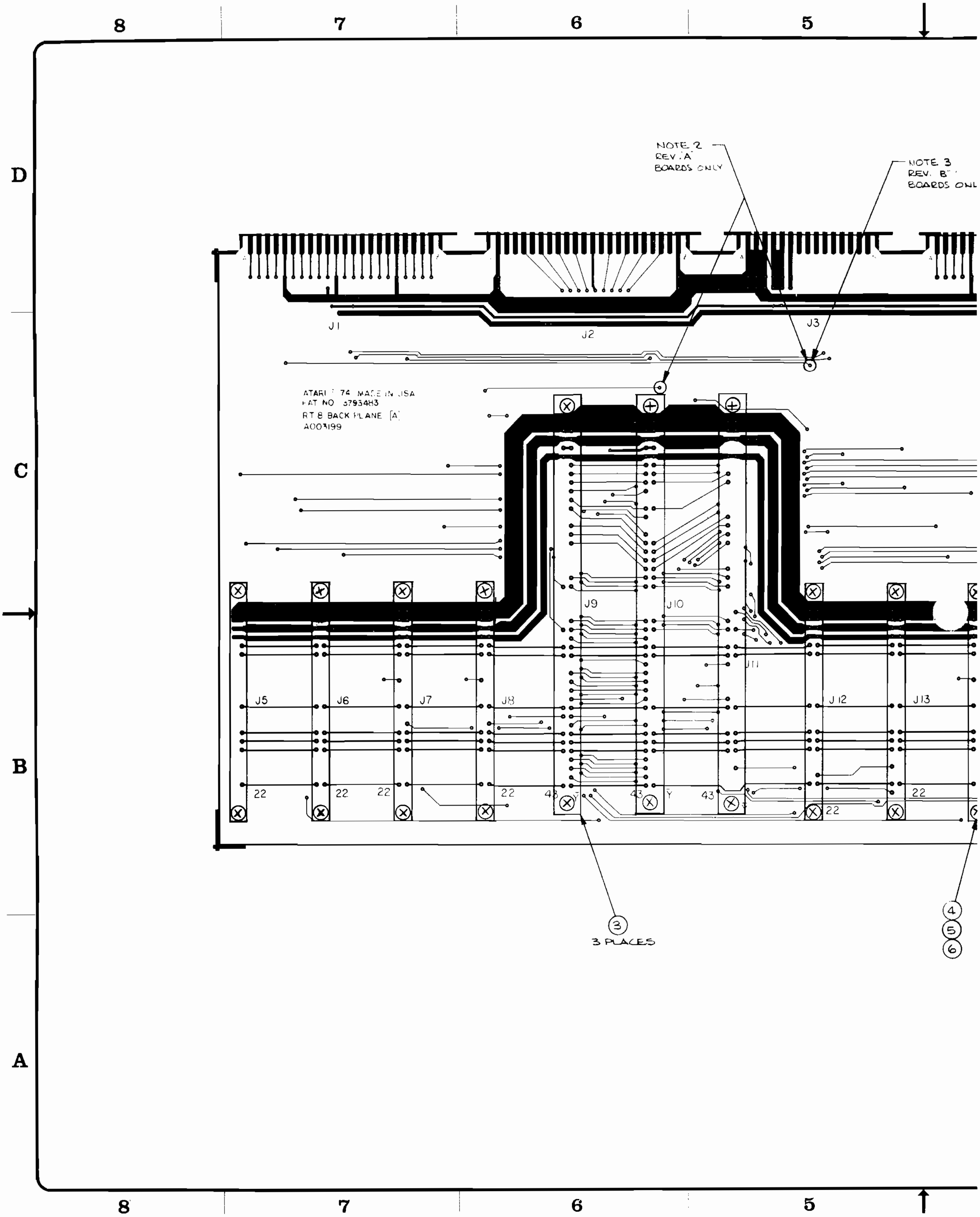
ASSEMBLY TITLE	RT8 BACKPLANE BOARD	P/L 003199

PARTS LIST SPECIFICATION — Page 1 of 1

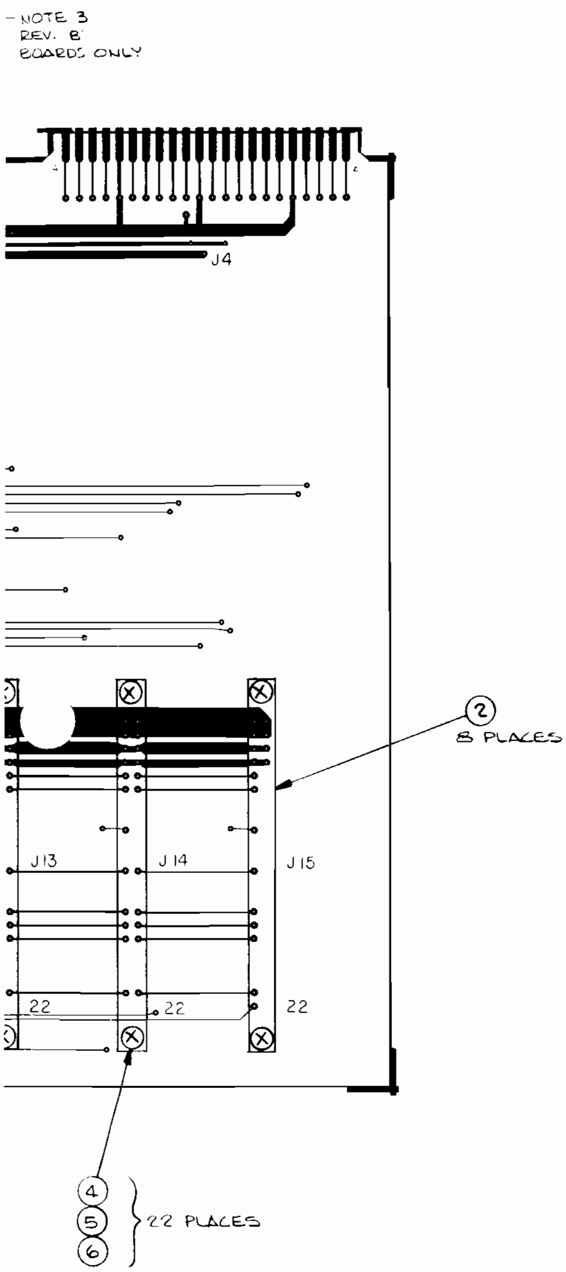
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Checked	Mech. Eng.
Proj. Eng.	Elec. Eng
	REV. D

Rev.	Description	Date	Apprv.	Rev.	Description	Date	Apprv.
A		2-3-75	[illegible]				
B	[illegible]	[illegible]	[illegible]				
[illegible]	REV PER [illegible] 1302	[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]				

Item	Part Number	Qty.	DESCRIPTION
1	003200	1	Printed Circuit Board (Backplane)
2	79-514222	8	44 Pin Edge Connector, .156, Dip Solder
3	79-514243	3	86 Pin Edge Connector, .156, Dip Solder
4	75-1408	22	Screw, Mach., Pan Hd., Phil., 4-40 x ½"
5	75-914	22	Nut, Machine, Hex, 4-40
6	75-054	22	Lock Washer, Internal Star, #4
7	79-511001	3	CONNECTOR KEY


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NOTE 2
REV. A
BOARDS ONLY
NOTE 3
REV. B
BOARDS ONL
J1
J2
J3
ATARI 74 MADE IN USA
PAT NO 3793483
RT 8 BACK PLANE [A]
A003199
J5
J6
J7
J8
J9
J10
J11
J12
J13
22
43
3
3 PLACES
4
5
6

SYM	DESCRIPTION	DRFTG.	CHECK	ENGRG.
A	PRODUCTION RELEASE	2/21/75		
B	REVISED PER ECN 1253	3/25/75		
C	REVISED PER ECN 1392	4/30/75		
D	REVISED PER ECN 1436	5/10/75		



NOTE:

1. ALL CONNECTORS MUST BE HAND SOLDERED TO P.C. BOARD.
2. APPLY DENNISON #43-146-1 SIGNAL DOTS TO THE TWO PLACES INDICATED, ON ALL REVISION "A" 003200 P.C. BOARDS (COMPONENT SIDE).
3. APPLY DENNISON #43-146-1 SIGNAL DOT TO THE ONE PLACE INDICATED, ON ALL REVISION "B" 003200 P.C. BOARDS (COMPONENT SIDE).
4. ADD A CONNECTOR KEY TO CONN. J9 (SYNC BD) BETWEEN PINS 31 & 32.
5. ADD A CONNECTOR KEY TO CONN. J10 (SCORE BD) BETWEEN PINS 29 & 30.
6. ADD A CONNECTOR KEY TO CONN. J11 (COIN BD) BETWEEN PINS 33 & 34.

MODIFICATIONS: (TO REVISION "A" 003200 P.C. BOARDS ONLY)

1. JUMPER CONNECTOR J9 PIN Y TO CONNECTOR J10 PIN 35.

NEXT ASSY	USED ON
	INDY 800
APPLICATION	

INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
FRACTIONS ± 1/16 .X = ± .1
ANGLES = ±1° .XX = ± .03
SURFACE FINISH ✓ .XXX = ± .010

MATERIAL: SEE P/L

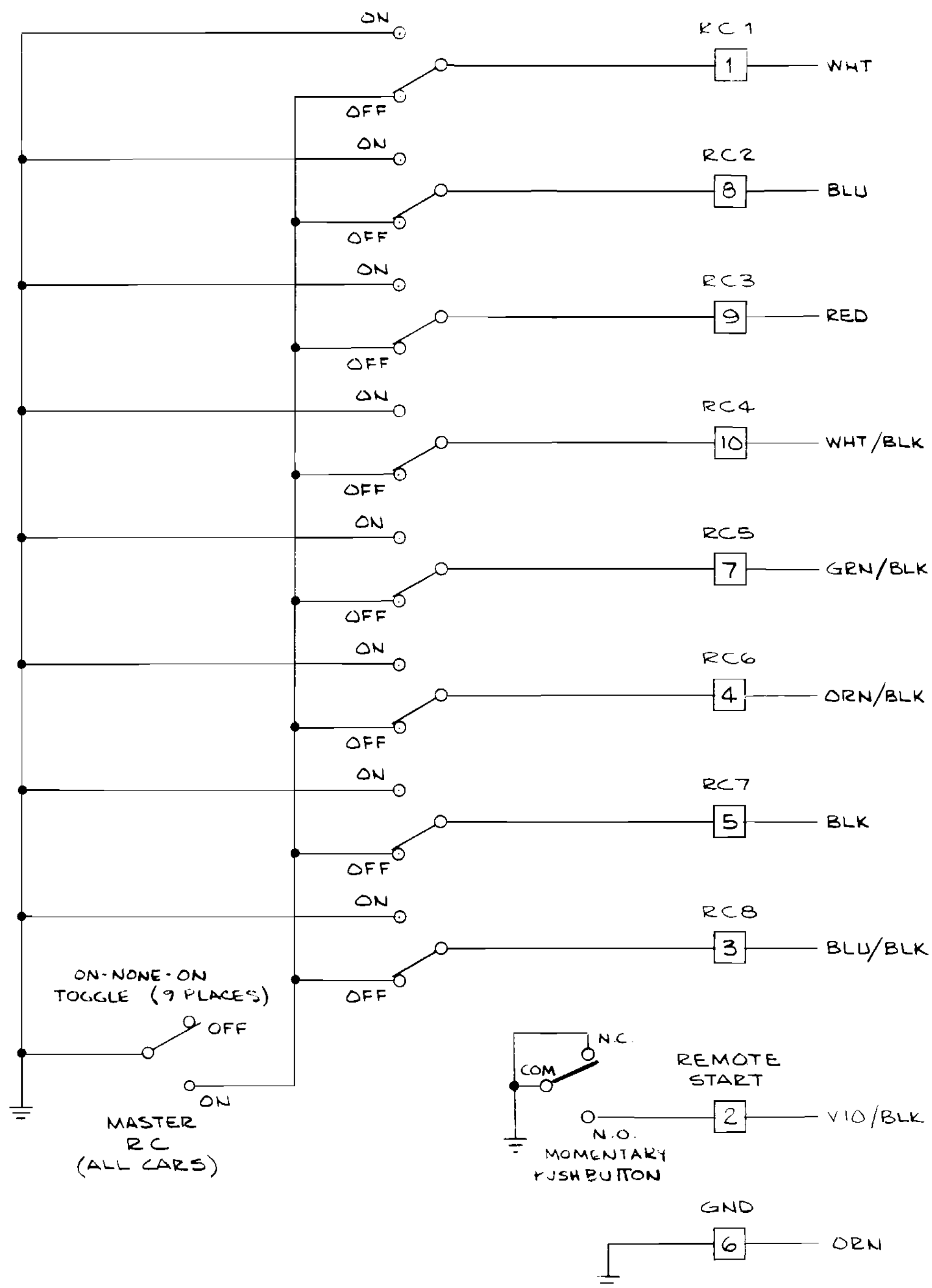
DRAWN BY / DATE
CHECKED
DESIGN ENGINEER
PROJECT ENGINEER
DOCUMENT CONTROL
APPROVED

ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

TITLE: ASSEMBLY, BACK PLANE BD.

SIZE: D | DRAWING NO. A003199 | REV. D

SCALE | SHEET 1 OF 1



A003193	KT-8 PLAYER
NEXT ASSY	USED ON
APPLICATION	

INTERPRET PER USASI Y

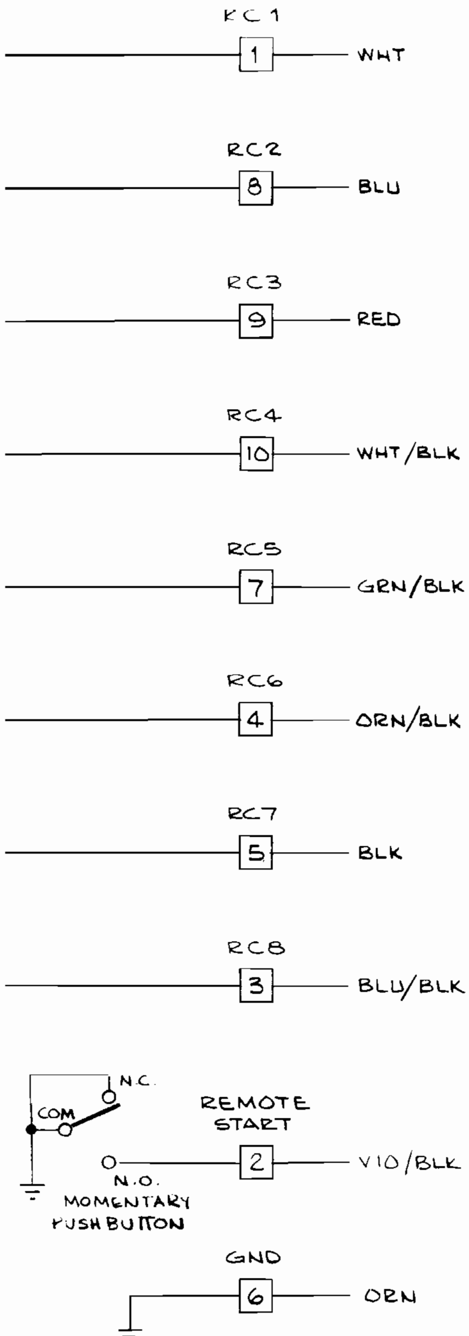
UNLESS OTHE DIMENSIONS TOLER

FRACTIONS = ±1
ANGLES = ±1°
SURFACE FINISH

MATERIAL:

REVISIONS

SYM	DESCRIPTION	DRFTG	CHECK	ENGRG
B	PRODUCTION RELEASE	2/25/75		
C	REVISED PER ECN 1282	4/2/75		



INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:

FRACTIONS = ±1/16 x = ±.1
ANGLES = ±1° xx = ± .03
SURFACE FINISH ✓ .xxx = ± .010

MATERIAL:

DRAWN BY | DATE

CHECKED

DESIGN ENGINEER

PROJECT ENGINEER

DOCUMENT CONTROL

APPROVED

ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

TITLE SCHEMATIC, RT-8 REMOTE CONTROL BD.

SIZE C | DRAWING NO 003193 | REV C

SCALE — | SHEET 1 OF 1

A003193	RT-8 PLAYER
NEXT ASSY	USED ON
APPLICATION	

ATARI Innovative leisure

ASSEMBLY TITLE	REMOTE CONTROL BOARD	P/L 003193

PARTS LIST SPECIFICATION — Page 1 of 1

Drawn		
Checked	Mech. Eng.	
Proj. Eng.	Elec. Eng	REV. C

Rev.	Description	Date	Apprv.	Rev.	Description	Date	Apprv.
A		2-3-75					
B	Rev per ECN 1148	2-26-75					
C	[illegible]	[illegible]					

Item	Part Number	Qty.	DESCRIPTION
1	003194	1	Circuit Board (Remote Control)
2	61-011C	9	SPDT Toggle Switch, PC Mount, w/Panel Dress Nut (C&K #7107 P3 D C B E A7807)
3	62-007	1	SPDT Momentary Pushbutton Switch, PC Mount, w/Cap & Bezel (C&K #8121C 8018-2 w/8025)
4	A003159-01	1	Remote Control Cable
5	78-25001	1	Cable Tie, Screw Down
6	75-247S	1	Screw, Machine, Rd. Hd., Cross Rec #4-40
7	75-054	1	Washer, Lock, Int. Tooth, Steel #4
8	75-914S	1	Nut, Machine, Hex #4-40

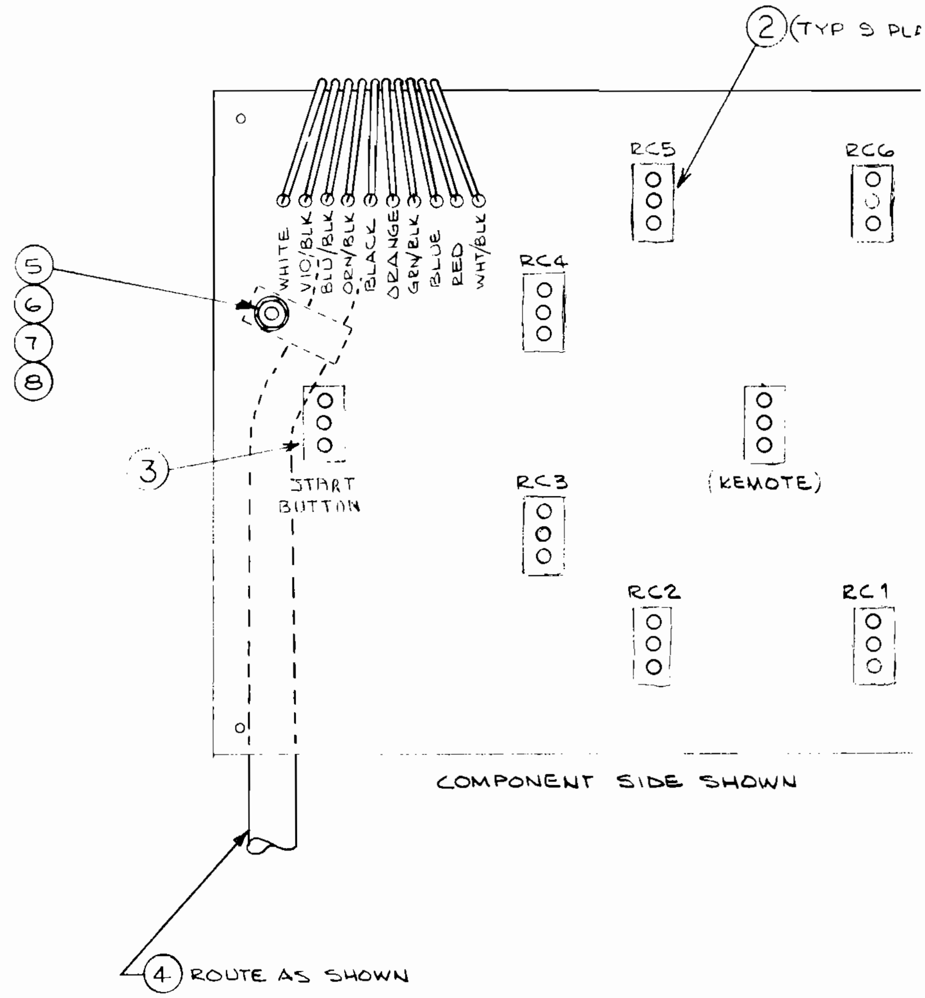
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NEXT ASSY	USED ON
	RT-8 PLAYER

APPLICATION

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UNLESS OTHER
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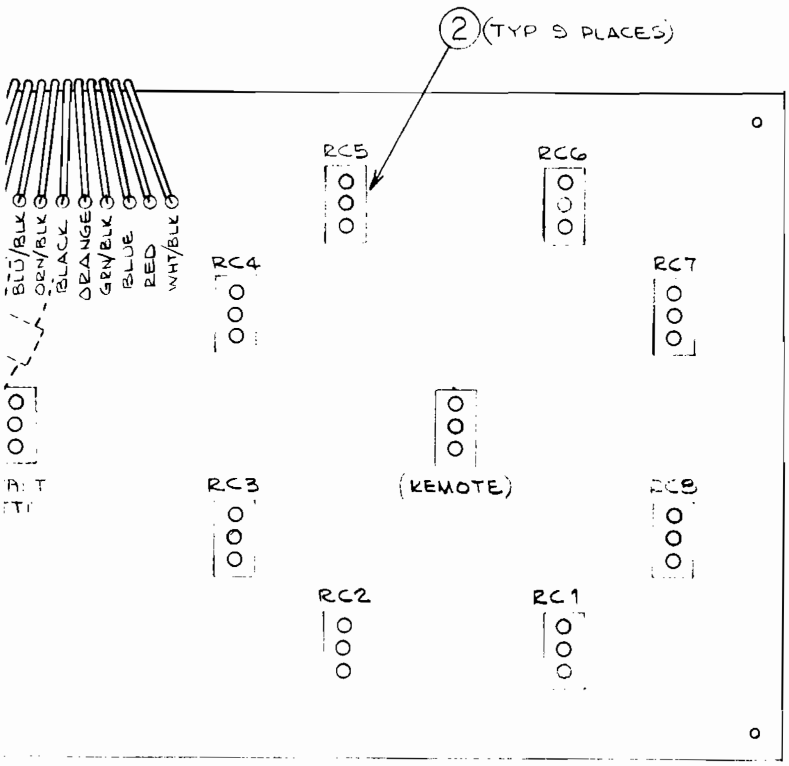
FRACTIONS = ±1/1
ANGLES = ±1°
SURFACE FINISH

MATERIAL
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REVISIONS

SYM	DESCRIPTION	DRFTG	CHECK	ENGRG
B	PRODUCTION RELEASE	2/25/75		
C	REVISED PER ECN 1282	4/2/75		



COMPONENT SIDE SHOWN

SHOWN

INTERPRET THIS DRAWING PER USASI Y14.5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON:
FRACTIONS = ±1/16 .x = ± .1
ANGLES = ±1° .xx = ± .03
SURFACE FINISH ✓ .xxx = ± .010

MATERIAL: SEE P/L 003193

DRAWN BY — DATE
CHECKED
DESIGN ENGINEER
PROJECT ENGINEER
DOCUMENT CONTROL
APPROVED

NEXT ASSY	USED ON
	RT-8 PLAYER
APPLICATION	

ATARI INCORPORATED
14600 Winchester Boulevard
Los Gatos, California 95030

TITLE: ASSEMBLY, RT-8 REMOTE CONTROL BD

SIZE: C | DRAWING NO: A003193 | REV: C
SCALE: 1:1 | SHEET 1 OF 1

DRAWING NO. A003193 | SHEET 1/1 | REV B

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